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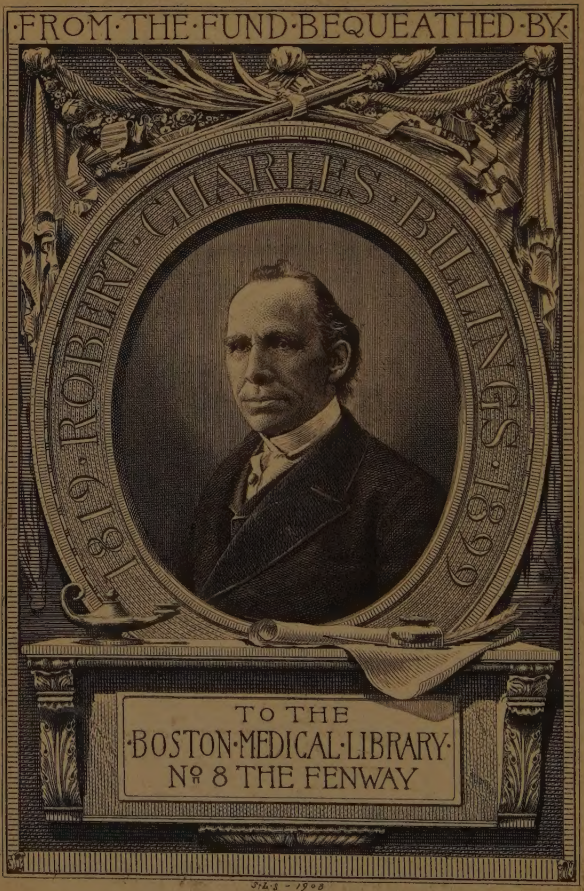
WALTER MOXON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PILOCEREUS SENILIS

AND OTHER PAPERS

BY

WALTER MOXON, M.D., F.R.C.P.

PHYSICIAN TO AND LECTURER ON MEDICINE AT GUY'S HOSPITAL

"Vitæ summa brevis spem
Nos vetat inchoare longam"
HORACE

LONDON
SAMPSON LOW, MARSTON, SEARLE, & RIVINGTON
CROWN BUILDINGS, 188 FLEET STREET
1887

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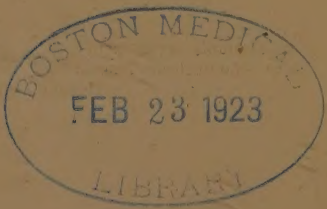

Dedicated

TO THE

STUDENTS OF GUY'S HOSPITAL,

IN MEMORY OF

ONE OF THEIR MOST EARNEST AND

DEVOTED TEACHERS.

PREFACE.

In accordance with the wish of some of the Students of Guy's Hospital, I have collected in this volume a series of Miscellaneous Lectures and Papers now no longer in print.

The book is published in the hope that it may be of interest to the Past and Present Students of Guy's.

S. M.

Highgate, *February 1887.*

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FEB 23 1923

NOTES AND REFLECTIONS

OF

PILOCEREUS SENILIS.

TO THE EDITOR OF THE 'GUY'S HOSPITAL GAZETTE.'

November 8, 1873.

'Dear Mr. Editor,—I am an old man now, but once upon a time I was younger, and now and then I come upon a scrap in my recollections that I fancy amused me in those days. I can't judge for young people now, but if you think these little pieces fit for a dull corner that by some strange chance might be found in your clever *Gazette*, these and more are quite at your service. To-day I lit upon the following scrap which may suit the views of some of our more intellectual young friends if they will read it in an idle hour—supposing such a time is discoverable about Guy's.—I remain, Mr. Editor, yours truly, P. S.'

When I had a little cash in my pockets, and walked along by the shops, it seemed

as if I could buy all the nice things one after the other, and the sensation was very enjoyable.

Is it not the same, too, with the little spare intelligence one carries? It seems as if one would with it 'get up' all the things that need be known, let alone a lot of shining quotations. But just as the first few purchases open your eyes to the end of your shillings, so when you try to learn what others around you know so extensively and well, then you find what a little stock of spare intellect you really have about you at any time.

Here's a melancholy truth!—however you work your few ounces of brains, you will get out of them what Thomson and Johnson got with the few pounds their father left them. One pays in gold, another in brains. And the world will sum you up, not by the mite of store your exhaustion was able to give, but by the scrap it was when cast into the world's treasury. They will take you as they find you, and care nothing at all how you got to be what you are. And you, poor fellow! full of the sympathies for your efforts, which your mother and aunt, and sisters and yourself, and all the little circle which saw you up from your petticoats, have had for the little swell they have seen you puff, you think it hard of the world; a 'hard,' 'cold,' 'heartless' world. Yes! It is! Not like your mother, and aunt, and sisters, and sympathising self! But don't be donkey

enough to expect it, man. Forget your petticoats, and be as hard as the world to your little puffs. See how little you think of other little puffing swells!

PILOCEREUS SENILIS.

HAPPINESS.

December 6, 1873.

HUXLEY says, 'I take it that the good of mankind means the attainment by every man of all the happiness which he can enjoy without diminishing the happiness of his fellow-men.' A very guarded formula, not assuming the possibility of one's raising the happinesss of one's fellows. It speaks of men and happiness; but it leaves unsaid anything about the time of development in a 'man' that is to be taken. Is it the childhood of the man that is to be chosen to see whether it is happy, or is it his adult age? But when is he adult? Is a first year's man adult? Is a man ever so in some cases?

The attainment! But when do we attain and enjoy? The proposition, you see, is too static, and doesn't seem to work with a moving world of people in different ages and stages. All the happiness that I can think of includes an undefined—and so unlimited—future, and that only belongs to youth. Nay! only to youth while full of zeal and faith.

In such definitions you assume that a man

can be filled, and so you leave out of account that undefined and insatiable desire which makes you, for instance, take up these large questions. The 'happiness' in Huxley's definition seems to get all it can for itself in a fair way of trade. But you will find out in time—first, that true happiness is happiness which you can enjoy with others; and second, that wise happiness is happiness whose source will still bring happiness at all other times and in all other places.

PILOCEREUS SENILIS.

TRUTH AND NEGATIVISM.

December 20, 1873.

A GOLDEN thread has run throughout the history of the world, consecutive and continuous, the work of the best men in successive ages. From point to point it still runs, and when near you feel it as the clear and bright and searchingly irresistible light which *Truth* throws forth when great minds conceive it. Truth not of 'Fact' merely, but Truth that includes the world that your senses are too coarse for.

This is Spenser's Arthur, with his shield. Oftentimes this noble Arthur has come to the Red Cross Knight, Christianity, and delivered him from a loathsome bondage of brutal coarseness and passion, and then gone away. And this Arthur has served other things beside religion so also; but he stays

not with any religion, or any *Thing* else. Some men have always to share on the earth a part of the work Prince Arthur did in Fairyland. The impatience of youth in the Red Cross Knight won't wait to see the purity of Una in true religion in its social shape, or fails perhaps to see the purity of some other agency through the social forms that encumber it—say impatiently fails to see the purity of the medical art; and he wanders off in the power of some false and sensual pretence. But Arthur, when the strength of wandering youth is cast utterly prostrate under the giant heap of faults, which are sure to follow being socially wrong, delivers him.

There is a power of living Truth where facts are dead—truth that cannot see whether the false is false, because the false never stands in his sight. He knows not the false; it burns away before him and is gone. But I forgot, some people don't distinguish between *things* and *truths. Perhaps you don't see that the constructive faculty of man has to make human truths out of brute things.* You don't think so! Ah! I see you don't apprehend truths that aren't things. You think there is no devil, do you? But look, there is no part of your life so really real as that in which the devil is a reality. These things we touch with our fingers are phantoms beside the devil's reality. They come and go, and you can pass away from and leave them. But the devil ('*Der geist der*

stets verneint,' the spirit which loves denial) you have always near you.

Learn to fight him, and you will see how real he is, and what strength there is in victory over him.

PILOCEREUS SENILIS.

LIBERTY AND WASTE.

January 10, 1874.

How loudly we cry out for Liberty of thought. Now, Liberty is a thing that no one has ever yet understood, and the more you think calmly about it the more you are inclined to guard and limit the glow the word excites. Certainly, if Liberty of Action is a thing to be feared, Liberty of Thought is more to be feared; for your actions meet with other people's actions, which check them and keep them in a path of reasonable safety. But thoughts can live in *vacuo*, and they may become ever so licentious and wild there. It is also true that the thoughts so wild may become Fathers to deeds which, while they inherit the parental wildness, enter on an existence in the hard world of things, and then, like those ancient sons of Jupiter, commit their Father's crimes without their Father's security from consequences. But we must not speak against the Liberty of Thought in the *Guy's Gazette*. Who shall dare prescribe limits to an Englishman's loving worship of Liberty?

Something in every Englishman's heart admires the good Bishop who would 'rather see his country free than sober.' (Whether it is sobriety or freedom that moves this admiration we won't stay to inquire.) But in our worship of Liberty let us take into account the sacrifice a complete Liberty compels us to make. Let us look at the negative side of Liberty—what it takes away. Suppose all the youths grow up in personal freedom and self-dependence, and have no reliance apart from their own private judgment. What, then, do they lose? You will see that they lose the fruits of the greater part of their nature. How? Don't you see? Think, then, how much of each of us lies waste and unused because his individual motives don't furnish 'go' enough to employ the powers he has. To use this waste (the larger part of most of us, by the way) it needs that one's individuality should come under some influence that shall carry it off from its self-centred 'Liberty,' and occupy it in an honourable unreserved spirit in work, under what is greater and better than self; what I mean is, that as 'free' individuals we have not power enough over ourself. I don't mean power to repress ourself—we can acquire that—but power to use ourself actively; a very different thing. How much of any man's wretched restlessness could be traced to the half-conscious striving of faculties he can't use! To use them he must go under some mind moved by greater

purpose. A great enough purposer can use any man's waste powers—powers that are out of the man's own reach. But if he will remain in self-centred 'Liberty,' then that better social part of his nature which his self cannot move is lost to himself and to others. The best interpretation of human restlessness is the instinctive desire to be used for some strong purpose, some meaning greater than a man's own individual tendency.

In another aspect you will see that the power of Prayer is of the same kind. For this waste of which I speak can be got hold of and used strongly by spiritual conviction, as well as by the influence of other minds. Here, perhaps, is the greatest prospect of a fruitful economy—the great store for the future to develop. Saving waste is always a worthy object. One ought to be ashamed of waste. It shows one's mechanism is not so good as one's luck.

PILOCEREUS SENILIS.

'DARE QUAM ACCIPERE.'

January 17, 1874.

I WONDER if Guy's motto, '*Dare quam accipere*' has any reference to the physic given there. No doubt it is not so good to have to *take that* as it is to give it. If you have any doubt, just taste a few bottles. (You will find them over the beds in the wards.) When you have tasted five, or

perhaps before, the question rises to your insulted tongue, Why are they made so execrably nasty? And you may ask whether the disadvantage of *accipere* might not be made to settle a little less bitterly on the recipients' palates. But givers are so apt to forget that it is better to give than to receive. The receivers don't forget it. They know well enough that it is better to give. Think of this when next you are roused by ingratitude. In fact, the advantage you have in giving should be remembered in every gift, so that you graciously recognise the receiver's disadvantage. By thus reversing the vulgar order of proceeding you will set up right relations between yourself and your humble recipient. For if it is better to give, then the giver is the party really obliged in the transaction, and should give his gifts and arrange his expectations of gratitude accordingly. So obnoxious, indeed, is receiving that you will, with a little insight, easily see that few people ever receive in quite a passive way at all. Receivers so keenly know their disadvantage that they try to avoid passive receiving by all sorts of devices; nearly every one who gets a thing from you will have some way of setting it down to his own taking power. For example, that fuliginous, skilly-fed scoundrel who cringes for a penny and shuffles off with it sniffling, do you think he accepts passively? Not at all! He knows he is a taking person. He got him-

self up to draw your penny; and whatever you think, he knows he did it, and hopes he will be as successfully nasty with the next gentleman that comes along. But if the receiver resents the relation he is in even when you part with commodities for his benefit, how will he rise against being made receiver when he gets nothing for it that he cares about? A hint, for an instance, or more pointed advice. Here receivers are apt to get angry. Yet they need not. They might see, on their part, that as the giver gives nothing, his blessedness is proportionately small; they needn't envy it. Especially those who give only gratuitous advice. You often meet such people. A sort of impostors who try to get the advantage of giving for nothing; people who themselves possess two great blessings—comfort and a good conscience. They would like to be blessed givers to you; and in their wish would hand you over something as a gift. The joke is they then show you how much more readily they will share with you their good conscience than their comforts. But I forgot about the physic which really might be made nicer.

PILOCEREUS SENILIS.

ADVICE GRATIS.

February 7, 1874.

PASSING the time at Guy's, you might perhaps, for all evidence to the contrary, be induced to think that advice always comes from a warm sympathy with the person who is directed by it. A great deal of advice is given gratis at Guy's, graduated in circumstance from the fine old quality to be got from the seniors in the wards, to the somewhat green though generous produce of the 'Surgery'—good and sound, only wants keeping. But the point before us is, that this graduation does not affect the quality of sympathy which, like the Guy's brand on our several vintages, is equally fixed on all.

Considered without reference to the Hospital, though, one soon sees that all advice is not of sympathetic origin. In fact, advice may be divided into three kinds from this point of view. For you will not long observantly watch advisers at their work without noticing that some sympathise with the object of their advice, others don't care a bit about him, while yet others don't conceal their dislike of him. In short, advisers are thus either *sympathetic*, *apathetic*, or *antipathetic*.

This difference is apt to escape notice, for the manner does not always reveal it; well-bred persons will give any of the three sorts

of advice with the bland tone of self-respect their breeding has elicited in them. The three sorts of advice, the sympathetic, the apathetic, and the antipathetic, must be discriminated by the *matter* they convey. I won't attempt to classify the matter of the stuff given so profusely as advice; its variety and amount are so immense that even if the quality were encouraging, the science of funguses would be nothing to it. Why, whatever motives a man admires, and finds himself too crank to work under, he tries on somebody else, as if to go pure at least by proxy.

When one won't or cannot classify, one must serve oneself with *types* of the kinds that are signified. I will adopt this easier plan now, and show a type of each kind. Thus the sympathetic adviser desires to see the advice succeed; he joins in the aim and is at one with the future course of the affair; the type of his advice is, 'Let me help you.' The apathetic adviser does not care one way or the other; the party may please himself, and the substance of his advice becomes a variety of 'Do as you like.'

While the antipathetic adviser will see the object much improved, he suggests the doing away of one and another of the characters of the fellow, until he were all abolished or transformed; in short, the whole sum of his advice might be typified in the suggestion, 'Get thee and hang thyself.'

Now, which of these forms of advice is the most creditable to the kindness of the adviser is clear enough; but which is really the best for the recipient is another kind of question, and requires other worthy considerations. Perhaps it does not make much difference to the advised whether the adviser wishes to help him, if he can get knowledge or means out of him to help himself; nor whether the adviser says to him, 'Do as you like,' when he is pretty sure to do the right thing; while he is generally not at all likely to hang himself, if only to show his independence. This you will see is in point so far as the applicant for advice wants what is in the power of the adviser to give, or in his own power to get from him—when, for instance, he goes to the other for information, consulting him as he would a map; or for assistance, getting a lift from him just as he would from a vehicle going in a convenient direction.

But this is not the only sort of advice; indeed advice got so is scarcely advice at all. The property which characterises *advice* as distinguished from *information* and *assistance*—at least from the point of the person advised—is this, that the adviser takes his place in circumstances that are too much for him. The question is, 'What would you do if you were me?' (He ought to say 'if you were I,' but probably wouldn't—the English are so far at issue with their grammar.) The adviser may on his part, as we have

seen, be either sympathetic, apathetic, or antipathetic, but the sincere seeker of advice does not recognise this. The latter two kinds are by no means what he would accept. He desires to be friendly-guided, and goes to give himself up for this purpose. It is this self-surrender that makes sacred the claim of the seeker of advice, especially of advice gratis. Not only is there the necessity that moves your pity, but the trust that relies on your condescending to interest yourself in his welfare. When seekers of advice try to *buy* it by bringing a present, as they anciently did to the oracles, or as they now offer from a shilling to two guineas as the doctor's fee, the notion is a bad one. Sympathy comes down to a shilling's worth.

At Guy's, where advice is given gratis, the sympathy is untainted by odious comparison with coin; if it were otherwise, the peculiarities of the adviser would assert themselves, and we should see in our Surgery varieties of quality in the advice. Under such circumstances you would get from each dresser a shilling's worth of himself. Thus, suppose the advice to be about an Irishman's molar tooth. The sympathetic dresser would think what further service the tooth might be, and say, 'Let's see if stopping will do any good;' the apathetic dresser would say, 'Now then, if you're going to have it out, sit down;' whilst the antipathetic dresser, after putting Paddy in a chair, would wrench his Fenian head to and fro, drowning the

enemy's yells with, 'Don't make that noise, it doesn't hurt you.'*

But of course, as it is, this is never so; the sympathy is universal; it never comes down to the level of lucre. Every tooth is estimated with the most sympathetic consideration, for sympathy is kept high and pure by the pity the poor applicants command.

On the other hand, when money is to follow, the adviser is placed awkwardly to furnish the money's worth; so that he must have the air of a well-intentioned divinity however crossed by modesty and helplessness. His sympathy no longer pure, he is obliged to do something for his money, and perhaps becomes injuriously active; advice gratis is better.

No doubt a paternal Government should select the truly benevolent doctors—Guy's men, for instance; and after satisfying their modest wants, supply them gratis to the sick of all classes, the public being particularly requested not to offer fees to the doctors.

PILOCEREUS SENILIS.

* I'm sorry to say I chanced to witness this conduct of a Guy's dresser, and wrote at once 'Advice Gratis' for his benefit (I doubt if he ever read it, though). He came to me two years afterwards for a subscription towards Christianising African blacks, he having turned medical missionary; fortunately, I think, Negroes' teeth last well.

THE WHOLE TRUTH ON THE PART OF THE PLAINTIFF.

February 28, 1874.

HAVE you ever had a subpœna? No. Well, when you become House-surgeon—which I wish you may in time—you will no doubt have several. The first that comes will be quite a little sensation. You will perhaps read it. By the way, you may never have seen one, so I may as well tell you what it is like: it is a longish, narrow slip of dirtyish, bluish paper, one side printed close, and the other indorsed with stiff-looking writing, to say who is the tormentor that persecutes you with it. The printed side has a serious official look, something like a death or marriage or birth certificate. There is nothing inviting in its style; it does not seem as if you were meant to read it. But as it is the first you ever saw, you may wish to know what it says, and then you will perhaps require to go over it more than once to discover its meaning. That is because there is so much effort to make it extra plain. Thus, you are told you must 'Be and appear in your proper person at Westminster Hall.' This order reminds you of a more worthy rendering of the same idea in the caution on the Nigger placard, 'No ge'l'man 'mitted unless he comes hisself.' So far there is no serious difficulty, but lower down it says you are, when

there, to 'tell the truth on the part of the plaintiff.'

Now, the first time I got a subpœna, this direction sternly stamped on the official slip, and followed by grave threats and a challenge from Sir William Cockburn, in the name of the Queen, sorely exercised my spirits. I gave the matter much thought, and yet never could get over the three things urged on me. First, there was the *truth;* then, secondly, there was the *part of the plaintiff;* and, lastly, there were Sir William and the Queen, and what they would do to me if I did not tell the truth on the part of the plaintiff. After some feverish contemplation I arrived at a determination to ask the judge about it. I resolved that when I got into the box I would say, humbly addressing the judge, 'Would your Ludship allow me to ask a question on a point of conscience?' I thought he would of course say, 'Speak up, sir,' or words to that effect. Then I should rejoin, 'May I ask your Ludship what I am to do if the whole truth won't go on the part of the plaintiff—if some of it is, for instance, on the part of the defendant?'

Well, the day came, and I got into the box; but somehow I didn't ask my carefully prepared question. Whether it was the lot of people looking up at me, or the wigs the barristers wear to terrify witnesses, or the horrible atmosphere of the court, I couldn't get my question to my lips before I was

blandly asked, in a reassuring tone, if my name was 'Pilocereus,' and if I lived at Guy's Hospital. And before I got over the effect the sound of my voice in a new place had on my nerves, the wig and questions of the bland barrister took possession of my whole attention, so that all general notions of truth had gone to the winds; until somebody said, 'That'll do, sir; you can step down.'

When the trial was over I was glad I hadn't asked my question. I had learnt a little by that time. I had heard other people give evidence, and then it seemed to me that the reason why the Court 'subpœnas' you to tell the truth on the part of the plaintiff is because the Court is in a difficulty, out of which the easiest way is to make this ridiculous demand upon you. And I soon perceived that the Court does not lose sight of the natural opposition between the whole truth and the part of the plaintiff. You will find you are not trusted to your own guidance in such a delicate dilemma. You are drawn out by a machinery of double plan; one side of which is organised for the part of the plaintiff, and the other is organised for the whole truth, and a little more if possible. After you are sworn to tell the whole truth, there rises one in a periwig. He is the organ on the part of the plaintiff. He proceeds to deliver your perspiring frame very gently and carefully of so much of your conscientious fulfilment of your oath as pleases him to hear, and he discourages

any more. Meantime, look at the wigged one beside him who is about to rise. How his eyes glitter! He is the accuser of your faith; his limbs are alive with suppressed action; his hair would probably bristle, but he wears a wig to keep it down; he might be crouched for a spring upon the ridiculous mouse your labouring importance has just been relieved of.

Wait a moment and you will find that he is the organ of the whole truth, and a little more, if possible. By the time these venerable but somewhat obsolete-looking personages have done with or for you, you will shrewdly suspect why the Court cared so little for common-sense in the stern invitation of the subpœna. When they get you before them, you are 'sworn' on a dingy little volume (they are careful to show who every one is, but I did not see them take evidence what the little book was) by a person who mumbles at you something inaudible. But the impatience of the Court seems to growl out what the savage bridegroom said when his tender bride hesitated over the oath to love and obey—'Leave that to me, I'll see to that.'

And the Court appears to be right when you hear the plaintiff's witnesses; his next friend, for instance, evidently only read about speaking on the part of the plaintiff, and forgot the rest. So that the judge has to check his clumsy prevarications with—'Do you think, sir, if you hide your head

like an ostrich that the jury won't see your great big body?' To which the organ for the whole truth smilingly adds, 'Yes, Mr. Brown, the jury see your great big body.' Now, no doubt the disregard of common-sense in the invitation and the mutter of the slighted oath fits well such witnesses. But when a medical man comes forward in a position which is entirely judicial, so that he cares neither for plaintiff nor defendant, it is absurd that he should be told to speak the whole truth on the part of the plaintiff.

It is an outrage on common-sense that the plaintiff should have power first to drag a busy medical man day after day to Westminster at a ridiculous guinea per day, and, second, the dangerous power of feeing him with twenty guineas a day; while the Court furthers the natural bent of such a course by ordering him to speak 'on the part of the plaintiff;' and the absurdity becomes grotesque when a gentleman in a funny head-dress, suggesting that the whole thing is odd and comical, or indirect and out of the straight, is set up on purpose to make medical truth fit the part of the plaintiff. Such machinery might easily act as a perjury-press with a little tact in using it, and the doctor subjected to it might well ask, 'What is truth?' Only there would be such an outcry in the court. Indeed the loud mention of the word would scarcely be thought acceptable to or properly well disposed towards the legal people there; seeing

that if truth were to prevail their occupation would be gone. No wonder, then, they want some impossible thing conveniently labelled *truth*, but demanded to be spoken *on the part of the plaintiff.*

PILOCEREUS SENILIS.

THE THOUGHTS OF THE HEART.

November 4, 1874.

THERE was one really interesting result of the skilfully conducted examination of the body of Napoleon III., which excited no apparent surprise in the physicians and pathologists engaged in that melancholy task, and which, in their report, they cast in such cold technical terms that it passed as a thing of no signification whatever. It ran thus: '*The brain and its membranes were in a perfectly natural state.*' I cannot quite say what one would have expected in that brain, but pathology makes keen observers; nevertheless, it seems no signs of broken empire or lost legions were discovered. Yet microscopes are very strong nowadays. I doubt, though, if they were used at all on the occasion in question. Perhaps that is as well; spying into the brain with the highest object-glasses is something like using extra big spectacles to examine the closed edges of a book you are wanting to read but cannot open.

'Perfectly natural state.' Truly what in-

sight pathology gives, then! Who that has to deal with brain-miseries would not be a pathologist! But why speak thus of pathology, when maybe the question is out of her compass? Sciences obtain what powers they have by ignoring all points in real things except those which the particular science elects to include in her system, and those points are not usually the ones by which individual things address our personal tastes and feelings. Thus botany sees our luscious 'British Queen' as merely *Fragaria Vesca*, like a common wild strawberry, because she has settled already what she will admit in strawberries, and does not take them with cream. Is it, then, in the same way that pathology is quite content to see nothing in a fallen Emperor's brain, because she has settled already what she will see in brains, and looking for broken empire and lost legions is out of her line? *Or is it that the peculiarities that create and lose empire don't belong to the brain at all?*

Napoleon I., we believe, said that the world is governed by a good stomach, and as he broke to pieces and set up more Governments than any other authority, he may be supposed to know. No doubt brains are wanted, but a higher necessity than the requirement of brains is the need of appetite to arouse and strength to support the work of a good brain. When Queen Mary said Calais would be found written on her heart, she spoke, in her way, better physio-

logy than any one would hold who directed the search to her brain.

The physiologists persuade you that thoughts come from the brain, and talk of its activity, discharges of nervous force, &c. But don't take that as the whole truth. The fact is, the brain is a sort of Æolian instrument of many strings, whereupon the several organs play ('organs play' sounds as topsy-turvy as Polonius at supper where he was being eaten, but I cannot help it). There are no thoughts in the brain without the whirl of the blood through it, any more than there is music in an Æolian harp when the air is still; and the brain in its vast complex receives influences which stir it to action in various regions and manners according to the appetites and passions connected with the several functionary parts of the body, as many winds move upon the vast expanse of the sea. So that David was right when he said 'the thoughts of his heart;' but the heart is not the only agent for eliciting thoughts from the brain; for while we say, 'Out of the fulness of the heart,' in reference to some, yet in other cases you feel sure you would be right in saying, 'Out of the fulness of the stomach the mouth speaketh,' or else out of an overfull muscular development of some other parts of the body. In support of this, remember how the thoughts of a bull are plainly from his horns, of a horse from his heels, of a pole-cat from her perfume-bag,

&c. In short, the demand to be used creates the supply of employment, both in the body corporal and in the body politic.

Now, practically, you see what a responsibility there is in having any organ over-active, hypertrophying beyond its just proportions, and hence playing too vigorous a tune on the nervous stringed instrument in your cranium, and how one must watch the energies of a dominant organ and withdraw from circumstances that rouse its too great activity. But it is not only in regard of individual organs that this is true; the danger of getting only thoughts of one sort, or too much of one sort, extends to a much higher sphere of activity. For instance, if you spend all your time in experimental processes of scientific weighing and measuring, you will come at last to think all nature is to be explained by the ponderable and measurable, as Professor Tyndall appears to have done. On the other hand, if you employ your time in the over-activity of the organisation at play in religious emotion, that kind of emotion will determine the turn of your thoughts until you are ready to oppose the conception of order in Nature in which religious liberty and tolerance are grounded, as many of his opponents do.

In short, special kinds of activity determine character. Thus are we creatures of our own activities, and he who has no special activity will have no character.

PILOCEREUS SENILIS.

THE INDIVIDUAL AND HIS LANGUAGE.

November 21, 1874.

MR. TEGETMEIER, the very highest authority on such a subject, told me, the other day, he had obtained evidence amounting almost to proof, that the variations of animals under domestication occur in such limited directions that they only obtain characters like the characters of allied species. So that what appears to be spontaneous in the individual, and to be his own peculiar property and product, is really only his share of a common stock of endowments whose origin is lost sight of. Before Mr. Tegetmeier told me that, the limits of my own resources, and, lest I seem too much to depend on myself, may I add, the conversation of my friends, had led me to a parallel conclusion; for I had come to think the primitive freshness of the little shoots that now and then show a fellow is alive is mostly belied by the more or less evident truth that identical little shoots have very much sprouted before. Now, don't let us at once say, 'There is nothing new under the sun.' Since that was first said crowds of new ones, more or less not quite of the old sort, have appeared, and the question is, how so much newness is contained in the general oldness. Evidently it is much more easy to turn out more

copies than to make fresh patterns, and Mr. Tegetmeier's observation would seem to show that Nature, whose dominant sense appears to be that of least resistance, discovered the ease of repetition long before man learned to play the part of second-hand providence, in saving originality by machinery. Such saving of originality by machinery is effected just now on an immense scale. Indeed, nearly everything you touch has a wholesale machine-made style—your boots have machine-made uppers, the cakes are Huntley & Palmer's. Even the sentences of your friend's conversation seem to have come to him ready made from Mudie's, just like Volckmann's sweets to the confectioner, or Crosse & Blackwell's pickles to the oilman. But that only in passing. What I am driving at is not the effect of human machinery, of novels, or steam-engines, but the nature-growth-aspect of mental produce as expressed in language.

Does it not seem curious to you the way in which language has got you, so that the power of words lays hold on every recognisable point in your many-sided and much-fretted nature, and any one who can rightly bring the proper words into play will wake up the images in your chambers of imagery, like the music of Orpheus awoke the surrounding botanical and mineral substances, until you let it be said that the stones cry out, and the hills be joyful, and the trees clap hands?

How in the world did words get such a hold on your nature so that you are at the mercy of whoever can drag you by them well and skilfully, and have to suffer much from the clumsy twitches of feebler performers, until you long to sever the communicating threads, or wish the pentecostal miracle could be reversed, that terms wholly foreign might not drag harshly your mental connections? It is worth while to trace this outside influence to its source. Watch a baby, and you will find its first sign of rational life is the conscious application of a word by which some simple object is called. It points to the eyes in pictures of animals and says, 'Eye! Eye!' and more than that, it looks to you for recognition of its cleverness, and expects you to look pleased and say 'Eye' too. And, so far as its intellectual life is concerned, the baby will go on through childhood and youth and adult age doing just the same; observing and looking for signs that others make the same observations; and so far as its social life is concerned, trying to make as much as it can by the observations of itself and friends.

Please take notice that the perception of the eye in our example is the baby's own, but the proper sign of the perception it has to learn from others. And it will go on making its own observations of simple things and borrowing a name for each, and its friends will lend to it these names always with pleasure enough. And to the child the percep-

tions it has conceived of the things it has seen and felt are very real, and its names correspond to realities. So far so good. But as the baby goes on, his friends begin to make him take words into him whose meanings are more or less outside his experience altogether. One degree of the foreigner is very simple, as when he hears of things and places he never saw. All one's life how much of the meanings of most words are thus outside one; he that has never seen the Himalayas or Amboyna has a conception of these how different from that of the traveller just arrived from either. But it is not *things* he has not seen, but feelings he has never felt and relations he has never entered, whose names come to him. Well, you say, but if he has no experience of these, they won't influence him. Stay a bit, the fact is different, for though he has never felt the feelings or entered the relations, yet he perceives and hears of their effects on others, and so at second hand has vague notions of meanings outside him. Now, cannot you see that the word is the *fulcrum* F, the meaning is the *power* P, and stupidity or ignorance is the *resistance* W? And when our youngster, or older person for that matter, is placed so that P the meaning is outside, F the word is in his ear, and W the ignorance is in his brain, he is so far at the mercy of the outer world; and in fact he is in exactly the opposite box to the more fortunate circumstances in which the mean-

ing is inside, the ignorance in his friends, and words for fulcrum are plentiful to turn his friends round and round. But yet another higher step. Are there not words which, in the way I have indicated, get planted in each individual in succession by those outside, and yet whose meanings are unknown by any? never were known by any one?—words whose meanings are not for the individual at all, except to awe him with sense of power beyond individual scope —articulate expressions of dominions that influence all and are within the range of none, by which the race claims and controls each of its individuals. And the capacity and tendency of each individual to be penetrated by and to share the import of these race-words form his loyalty and religion, and give proof that the individual is '*true to kind*.' How, then, about the individual and his language? You see that of every race there is a deal in its language that is too much for the individual; puts him, as it were, on the short arm of a lever. And as a corollary, it is true that if a man desire to keep his intellect within his own power he can do so in two ways. One is to learn to be callous to meanings that are outside him; the other is to comprehend all meanings within him. The first will make him secure, but an insensitive blockhead. To achieve the second is the promising aim of 'self-development.' To perceive the baseness of the first and the impossibility of the second,

so as to accord to those outside a proper and just esteem, is the modest side of true gentility. PILOCEREUS SENILIS.

CREATIVE BELIEFS.

January 30, 1875.

MR. MILL says, 'When I use a name for the purpose of expressing a belief, it is a belief concerning the thing itself, not concerning my idea of it.' In other words, language expressing belief about things concerns the things themselves. Of course, if the belief be true, the thing spoken about and the thing said of it are really related, as the proposition asserts them to be. But if the belief be not true, then, nevertheless, according to Mr. Mill's statement, the things themselves are really concerned in the utterance of the believer. The believer's meaning is a bond between them. When a man utters a false belief, he himself forms a link connecting things which in Nature are disconnected. These things enter into new relations by means of him. Their creation is advanced in that a fresh force has linked them. And, in some instances, this creative link serves to commence a real linking of the things concerned; so that the false belief of to-day becomes the truth believed to-morrow. Say in Politics or in War. The false but believed assertion, 'The enemy are giving way,' running through the ranks

makes it that the enemy actually do give way. The believed statement that the people are going in crowds to buy Buttons' silks sends the people in crowds to Buttons' to buy them.

How much comes about by lies believed into reality! The *creative lie* is a mighty power in the world! In London you might come to believe that the most possible lie is the strongest thing afloat. So many thrive by the creative assertion of the not yet true. 'Diamond Mountain shares are in great demand!' 'This style is all the fashion now!' and the demand arises, and the style flourishes, though there was no demand, and nobody knew the style when the assertions were first made. Thus, in grim earnest, as Mr. Mill says, 'When I use a name for expressing a belief, it is a belief concerning the thing itself, not my idea of it.' *Concerning* it, indeed! Let it beware! Such power has the belief of man over this planet (the other planets may thank their stars he cannot reach them). Why, the belief that coal exists beneath Sussex may possibly turn Eastbourne into the Black Country, and will do so yet, I fear. *Certes*, without this grim belief Eastbourne were safe.

Why does false belief create though? Let us take the reply to this question in general terms, for we must make a step up. Why is the belief a 'belief concerning the thing itself, not concerning my idea of it?' Well, as Dryasdust might have it, we will say—A man's

belief concerns the things he believes in, when, and because, he has power over those things, to influence their course, either by his direct exertion or by his arousing the action of other people upon them. (I could show, if necessary, that the force of Mr. Mill's remark, properly analysed, really founds on his confusing—or shall we say fusing?—the idea of intention in the idea of belief.) Why, Mr. Mill himself is a mighty good instance; he, with his idea of Logic, and his not very correct belief about it, has so changed the thing Logic itself, that Hobbes, his great master, would scarcely know it. Ay! if the beliefs of geologists concerning Sussex can threaten all the verdure of its hills and valleys, how much more the beliefs of logicians must affect that rendering of semi-phantasmal mental phenomena which forms the current 'Logic' of a period! A great one like Mill verily creates by a new *fiat*, and the little ones give it substance, on the principle that leads crowds to Peter Buttons' silk-shops—putting their numbers in its favour, and giving it mass and power, much like you may have seen so many soft iron-filings cohere, one and all, by a magnetic force, which they could not have originated, being meanwhile indifferently ready for another force, though, of course, they can't see this.

But now another step, up, or down, or how I cannot say; but into a vaguer-looking, mistier, duskier region. How about the creative effects of beliefs in the 'Science' of

Medicine? Here creative belief, instead of solid, ponderous Sussex hills, or instead of the great and well-knit fabric left by the genius of Hobbes or Locke, has had, since Galen, a plentiful, loose Miltonic chaos of 'Hot, cold, moist, and dry, four champions fierce,' on which to work, and anybody's belief, if kept up loud and long enough, creates sufficient to satisfy the creator's wants. There has, however, been a certain sort of vaguely practicable fabric of physiological and pathological lore arising and forming the domain Medicine is now in, so that she has got out of the chaos of 'hot, cold, moist,' &c., and may be said, like Milton's adversary of God and man, to be 'O'er the backside of the world far off into a limbo large and broad,' 'where at foot of heaven's ascent' (that is, at Physiology and Pathological Anatomy) 'they lift their feet, when lo! a violent cross wind from either coast' (that is, therapeutical reaction and popular demands) 'blows them tranverse 10,000 leagues away into the devious air.'

There is something, indeed, pitiable about therapeutical reactionaries.

Mr. Mill laughed very cleverly at the definition of digging as 'putting your idea of a spade into your idea of the ground.' But these reactionary, old womanish folk cannot afford to laugh at such a definition. You see at once that their treatment consists only in putting their idea of the physic into their idea of the disease (the patient's

unhappy stomach only can doubt this, and declare there is more and nastier); at least the whole affair is so far ideal that there exists nothing corresponding either to their idea of what the disease is, or their idea of what the medicine is and can do.

Still, as Milton put it, one seems to see that from chaos through limbo the 'old gentleman' got to earth at last, and we will hope that by resisting therapeutical old womanry reaction and popular demands, as much as our stability will allow, and, standing on Physiology and Pathological Anatomy as firmly, and going as high by them, as we can, we may find our way to the 'happy hunting-grounds.' But for one mind that can safely traverse the chaos of 'things hard and rare,' there are nine who will become infectedly chaotic; and the lucky strong ones are strong against, and not by reason of, the uproarious elementary confusion of 'things' which come from the modern medical papers like dust and scoriæ from volcanoes. Why cannot we combine against the continual heaping up of unverified hearsay? Ingenious men with large memories connect together various well-meant quotations, until some far-away propositions, uncertainly drawn from uncertain sources, go for the 'progress of Medicine.' Let us keep the meanings of people near what they know and what we can realise.

PILOCEREUS SENILIS.

CONVERSATION.

April 1876.

I BELIEVE that all minds have pretty much the same kinds of activities at one or other time of their existence, and vary only in this, that different persons severally enjoy and encourage not quite the same impulses; or, to regard, if you like, the affair as more passive, they differ in this, that varying activities naturally preponderate in different persons, though the whole round of human activity is more or less present in all. No doubt the plan of different people's minds is very much one and the same plan, so that their minds correspond after the fashion of the correspondence you may see in a lot of dew-beaded spider-webs on a hedgerow, when you are out fresh and early any autumn morning. If you look at the webs you will observe how very like and yet different each is from the other webs; differences in size, so that there are great spider-webs and little spider-webs, just like great minds and little minds; and differences of accidental attachment to this or that twig, just as great minds stick to a great lot of little things, and little minds to a smaller lot of little things; some smaller, some greater, all corresponding. The old spider, somewhere in the middle of each, keeping a sharp look-out to come running down when there seems a chance

of getting hold of anything; and something not unlike the old spider is waiting in each mind, great and small, as you may know if you get any of your estate entangled in the meshes of one. '"Will you walk into my garden?" said the spider to the fly. "'Tis the prettiest,"' &c. &c.

If we could see the whole fabric of each other's minds, how well we should be able to compare ourselves with each other, and find those nearest our own sort—so as to avoid them perhaps—and what a saving there would be of the odium of making, and the annoyance of suffering, false impressions, and then unlearning our nicest lessons! As the matter stands, however, it is often rather through carelessness that such false impressions are made or received; for we instinctively perceive what it is that another person takes real pleasure in. We don't want to be told. Often the other could not tell us if we needed to know. Other people may best know when you are really pleased. The most artificial only requires to be seen oftener by a good observer. His true pleasure will reveal itself to those who observe him; so that although his chief delight seems to consist in keeping you supplied with gratuitous good advice, you may see that that is nothing to how he enjoys himself at something else. Now, if all minds are so alike in plan, why are some very pleasant to be near, and others, to say the least of it, not very pleasant? The dislike people's

bodies have excited is moonshine to the repulsion folks have shown, and do show, for other people's minds. Is it at all due to the above-mentioned fact that we are made on the same plan? so that each feels himself respond to every activity another exhibits. And there is no kind of activity in one that does not put in play, in some degree, the corresponding activity in minds that witness it; so that, however much you may dislike the thoughts and feelings another person stirs in you, yet the underlying identity of the plan of your common human nature enables him to arouse within you his own sort of activity, just as a tone of music starts into vibration, and produces the same note in any portion of an object which naturally yields the same sound. And it is this most penetrating contagion of influence which makes minds so much more intensely disliked than bodies can be. Because in no one can all parts of the mind be active at once; and every one, as he lives on, comes to take direct and spontaneous pleasure in some kinds of thought and action more or less exclusively of other kinds. And the kind of thought and action that pleases one does not please another; whilst, meantime, each is obliged to feel the other's influence right inside him when he is within range; so that you may stir up inside another person's mind, by what you say and do, the very things he has all his life been hating and trying to repress and mortify. In which case he will

naturally wish you further. And even if you are clever enough to raise in him a certain pleasure in the part of his mental nature whose action is not spontaneously pleasant to him; then, when you go away, and his own nature comes towards its usual balance again, the kind of thoughts you have aroused have to sink down again into their usual place, where they are not naturally approved of, and have to atone for the glow you gave them by going under amidst the disgust of the usually dominant parts of his mental nature. Well, next time he sees you, the thoughts in question may remember their setting down and keep away from you.

How countless and various are the possibilities of thought in a well-informed mind! yet it can consider but one thought at a time, as the eye can examine but one thing at a time. Hence should come a deep sense of responsibility in addressing the minds of others, because we presume then to engage their consideration contagiously in the limits of our own; and what we thus set them upon may be too trivial, if it is a matter of knowledge; or, if it is a matter of feeling, their feelings may be too refined to allow them to enjoy so coarse a sensation, or too coarse to allow them to enjoy so refined a sensation. Thus we may see the foundation of real affinity and antipathy between individuals.

It is because all minds are too much on the same plan for one to be indifferent to the influence of another; so that a mind by

nature and culture refined and sensitive may be subjected to rude and rough horripilations of its most gentle feelings by the coarse communication of one in whom the corresponding feelings are exaggerated, uncultured, or raw. For sentiments which are deep and sacred in one mind form, as it were, a highly coloured prominent feature on the face of another.

Similar as the plan of structure of our minds may be, yet there is a bias proper to each—a bias which, like the curve in the course of a Scotch bowl, grows more marked as we move on. For our centres of gravity are not in the same part, and we 'incline,' as we say, in different directions. *Where is your centre of gravity?* That is the question for a would-be friend. In other words, 'Shall I like and approve the inclination of that part of my nature which this other person throws into preponderance by his presence and by what he says and does?' If not, the less of him the better, except as an object of observation, that is, an acquaintance.

Remember this, especially, ye who would desire to produce goodly results on others by directly addressing to them advice that you think good, especially if your goodness is of the prominent-feature type. For, alas! goodness may be showy even to vulgarity, as it may be noble. It is only *rightness* that is indifferent to station, and equally right in all stations.

Remember it, especially, when you are in the society of those in whom not mere goodness, but a certain refinement, is required. For please observe that a *right refinement constitutes the goodness of the better classes.* I say a right refinement, that naturally is averse from the kind of sensational goodyness which loves prominence and recognition, and will allow no concealment of its superiority to the common little enjoyments of its not equally goody neighbours. True goodness is not the sort you pride yourself in and force upon others. True goodness is a thing ascribed to others, rather than felt inside, since the days of the Pharisee and publican.

How the time, place, matter, and manner of well-meant remarks may cause sensations in the hearer's mind such as won't lead to the wish to have them again; so that the very praiseworthy—in its way—object may be defeated, whilst the speaker is inwardly flattering himself, as usual, with scarcely merited unction, and entirely unconscious that he is only making a nuisance of himself, and that the hearer he would attract to his own kind of mental or spiritual activity is all the while wishing him in that disembodied state where these sublunary mistakes of the real effect of our activities are no longer possible—wishing him in that perfect communication of souls with each other, where mutual fitness and comparable worth may be at once revealed, and each find his

own sort and his own proper level, instead of putting himself out of his level in the wrong sort. Ah! when thus all are revealed, what a general falling into levels there will be! The more ordinary ones stages away from the more enriched and perfect; stage above stage, like the receding circles you may see in those fourteenth-century pictures of beatified saints around the throne, in the National Gallery, the greatest ones, Peter and John, nearest, as at court here below; whilst the very distant ones dwindle down to little rings in which you cannot see a nose and eyes, and the last rows are only dots—a diminishment which must be unsatisfactory for those outsiders, and has often seemed to me to need explanation for one's consolation in the prospect. But I can, after much consideration of the subject, only offer the following, and I cannot suggest that it is very comforting to us outsiders; although I believe it is a very true explanation. I believe, then, that each one's appearance in that state will show just how far in development he really got when alive. Stripped he will be of all the scraps of matter not his own with which he was able to put in a respectable appearance here below; only his own proper production will be allowed, not his little make-believes of mental or spiritual considerableness. Hence, then, so many baby-forms, and yet smaller, in the condition from cherubs down to rings and dots crowding the outer circles. It would be of no use

bringing a good glass to bear upon them. They *are* the dots they look; promiscuous nothing-particulars which, favoured by what was put into and upon them by their teachers and preachers, did very well once; so that they went through life, and even passed for adults, to such observation as was possible here below, where there are so many dodges taught by Mother Nature to help us conceal those truly infantine proportions in which we are caught by adult age without having escaped from childishness. *Inter cetera mala hoc quoque habet stultitia semper incipit vivere.*

Did you ever see a caddis worm? When I was fishing I never could stick a hook into a caddis worm. I never contemplate a caddis worm without a certain feeling of brotherhood. Nature is essentially too satirical in the way she takes off one thing when she designs another. Every one has, by nature, the faculty of picking up bits wherewith to furnish himself according to the grounds he is upon at the time, as the caddis worm dresses herself in scraps of green when she is upon the leaves, and in bits of brown when upon the stones. Don't despise the simile and think it rough. Don't say to me, 'Everything has both its higher and lower parallels; why should our elevated minds take the lower parallels?' I should be tempted to reply, 'To keep down at our proper level, O brother worms!' In point of fact, I expect, the mental dress of most

of us is rougher by comparison with the best satins and velvets at Swan & Edgar's. Most minds are like maggots dressed in scraps, and all that is their own is just the glue the scraps are stuck with; and so much is the weakness of even this glue recognised that in common conversation your subject must not be too deeply or seriously followed. 'The human mind' won't endure it. In other words, you mustn't shake the scraps much for fear you see the maggot.

PILOCEREUS SENILIS.

FAITH.

August 1876.

A GREAT deal of harm arises in the world through our perceiving things only partially whilst we are becoming quite familiar with their names, and then we think and talk as if we knew all about the nature of them.

This is not very inconvenient when the things in question are ordinary commodities, animals, or people of any sort, because, when talking of any such articles, &c., the names serve as the labels of sufficiently definite and well-enough known things; so that when we speak of such things we know what things we are talking about even when we don't understand much about those things.

But it is different when people proceed to talk about such matters as their own mental faculties, for then they may not only not

understand much about those faculties, but they may not quite know what the faculties are that they are talking about. We *probably* all have the same sorts of faculties, and there are names for those which people more or less mutually recognise. But have you ever thought how *probable* it is that persons in speaking by name of any faculty of their minds, of their knowledge, their faith, &c., for instance, don't mean the same mental article by the word faith or knowledge? I think we all have the same faculties, but whether it is that a faculty highly developed in one is relatively dwarfed and hidden in another I know not. This I know, however, that when persons speak of their faith, knowledge, &c., they don't all mean the same things by those words. I feel sure of this, because I have heard a man speak of his faith, and mean by it his charmed sense of a goodness which it was his life's design to join in; and I have heard another man speak of his faith, and mean by it something he did not think he need pursue, but which he rather held on by while he took all the things that came within his grasp. So that with one man faith may be compared to wings supporting him by his own brave effort where there is no ground to stand upon; and with another, faith is as a prehensile tail, such as you see on those monkeys who, holding securely by something they are not obliged to keep in view, have their hands thereby the more free to pick

nuts, &c. Let us not think disrespectfully of any; to the born prehensile such a tail is a requisite. We see how needful it may be at the 'Zoo.' And though nature gives to the human form no such outward and visible sign of dependence, it may be just the same inwardly with men.

Now the two people to whom I have alluded as meaning such different things by their 'faith' would read things written about faith, and perhaps would speak of faith, together, and very likely would misunderstand each other and almost quarrel, or at least think strangely of each other, never suspecting that they did not mean the same thing by their faith.

The one man means by his faith his hold upon certain things he thinks he knows, by which hold he would remain fixed; the other man means by his faith his desire after better life, and his belief that better life is to be and will be obtained, in which desire and belief he continues moving towards the aim of his faith.

Now, the man who obtains a certain hold upon things he thinks he knows, and who makes use of that hold for the purpose of mental stability and for obtaining means of purchase, and who attaches the great word faith to this process, does injustice to his own mind and to the minds of those influenced by him; for there is no faith at all in such a dead-alive proceeding; or at any rate, if common usage allows the word

'faith' to such adhesion, some other word, conveying, if possible, a higher and more ennobling esteem, should be found for the impulse after the better life, which some call 'living faith.'

To use the noblest word in language—'faith'—for a process or mental condition such as we often see it employed for is simply preposterous. To get a certain amount of knowledge, and then say of it, 'That is my faith,' is an absurdity only too vulgar. Very often the knowledge which one calls his faith is a heap too much for him, and has taken all active faith out of him. I have met the modern scientific and well-read youth, who has studied chemico-physiological lectures upon texture and its vitality, until he thinks that the life is nothing more than meat, and read Carlyle's *Sartor Resartus* until he suspects, 'nor the body than raiment,' and who would call the holding of such opinions 'faith,' and then wonder at the enthusiasm faith has aroused in the world. Seeing this result so often has led me to believe that excess of knowledge *in the form of statements learned at second hand* is dangerous to faith; so that in growing a faithful mind, one must see that second-hand science taken in by it bears a certain limited proportion to the impulse after spiritual vitality which is true human faith, lest that impulse be overwhelmed, and the mind be left prehensile, clinging to some less bough it thinks it knows.

They say 'Knowledge is power;' but knowledge is power only when living faith has ability to use it. Knowledge is power when faith has identified you with it. Crowds of things have been told you on such grounds that they went into your mind as 'true.' Yet they tend often to conflict together when you have to come to a decision, true as they were then. It is when you have personally to decide that you will find out the difference between your living faith and your dead knowledge. Until then you have 'knowledge' of many really conflicting things, but you cannot tell what your faith is until you have to act. How many men endure much *ennui* and languor because their circumstances are quiet and they have an immense lot of things in their minds, various and dubious, because conflicting; and yet nothing obliges them to decide. The fact is, that in their quiet times men don't know what it is to believe; but sterner issues now and then arise, and men have to say what they are for. Then arises belief, and afterwards faith. Then faith becomes real; you live in it and die for it. But in quiet times men forget what faith is, and are apt to have no faith, and to lose the true meaning of the word; so that they drop down from faith to belief, and from belief to mere knowledge, until they treat all these distinct things as if they were the same, and forget that *knowledge* is the crowd of things which have been at various times accepted by the

mind, and *belief* is the perception of an issue arising out of matters of knowledge; and faith is the devotion of your whole nature to that issue; so that where no such issue arises there may be knowledge, but no belief; and where the issue does not cause devotion of your feelings there may be belief, but no faith.

A judgment on matters of knowledge in which there is no issue pending is only an opinion, that is, a conclusion in a balanced statical condition. But in the rise of belief and faith a dynamic power is introduced. What I believe is what I would be and do if identified with a side in the issue. My faith is what I am and am doing. Faith is part of your acting nature; noble faith is part of nobly acting nature, ignoble faith is part of ignobly acting nature. It develops with your acquirement; choosing some lines instead of others; forsaking some lines; noble belief following the lines that offer most possibilities of higher faith. Did you ever watch the growth of a tree? If you look into a tree of any height you will see the stumps of many branches which it has cut off in its growth, branches which did not go in the best directions, so that other branches took their light away because they were able to rise above them. The tree grew lofty by its power of choosing lines that sent some boughs up above others, and so starved them. That power in the tree is analogous with living faith. But watch a scrubby

bush, and you will see that it differs from a tree in its equal treatment of all its sprouts—they all flourish alike—there is no sacrifice of one to others, and hence no upward progress. And minds that cling to every reality as of equal value or 'truth' are, and remain, scrubby minds like to the scrubby bushes.

The fact is, you cannot believe all you have known; some things you know conflict with other things you are sure of. Your faith is your own line of action in the conflict of opposing things that are equally 'true.' But if this seems nonsense to you, then think on what the physiologists tell you of the texture-life of your body. If you ask what life is, they say it is the composition and separation of texture. And if you ask what composes texture, they say 'chemical affinity;' and if you ask what separates texture, they say 'chemical affinity;' so that life exists in and by the composition of things under laws of chemical affinity; and the power of life is that very conflict within the range of chemical affinity.

What wonder, then, if faith, the life of the mind, exists in and by a like continual constructive and destructive play in the things whose composition forms your mind; so that faith, the life of the mind, exists in and by the composition and embodiment of mental acquirement under laws of belief, and their destruction under laws of belief, and the power of faith is that very conflict itself within the range of truth.

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For, as opposing chemical affinities are to life, so are opposing truths to faith; and as there is no bodily life without destruction and elimination of tissue supplemented and restored by other tissue laid down in just succession, so there is no faith without destruction and elimination within your body of knowledge. In short, in your faith you must reject and deny. There is no faith without a continuous integral rejection and denial of exhausted truth, supplanted and restored by other truth laid down in just succession.

In the life of the body-units, in Professor Beale's view, the formless only is truly alive, and whatever has taken distinctive shape in the form of muscle, bone, &c., is dead matter. Whether this is true of the tissues or no, I am sure it is true of the mind that whatever has taken precise form, as proven knowledge, is dead to the life of faith, and is only alive so far as unformed living faith has power to put it into motion. So it happens that the man with the largest faith is also the man with the largest doubt; and if he seems foreclosed on points where little sceptics air their uncertainty, it is because he has no petty doubts; and if he seems dubious where little prehensile believers are sure, it is because they are incapable of faithful doubting.

You may think I am wrong in calling this power of the mind, this power of life in the mind, by the name of 'faith.' But what would you call it? Ought it not to have

a name? Is there not a power in each of us who truly lives, a power itself formless, which governs the form of all that organically enters the mind? This power I call faith, and wish to keep it distinct from all prehensile faculties. This faith moves forward, confident in clear sight and confident in the future. It is not constant in any mind. It is contagious from mind to mind. The ordinary word whose import is nearest to it is the word *meaning;* no one can have this faith unless he has a meaning. He has no faith who means nothing; and the common nature of faith and meaning is best seen in their common feature of contagiousness. The highest and ultimate signification of faith is in this contagion. By this contagion it comes that there is more in the world of men than can be worked out in terms of its units—I mean, in accordance with the limits of the interests of single persons. And he who does not see what I mean does not know what faith means; he confuses it with knowledge, creed, opinion, or other comparatively dead things.

PILOCEREUS SENILIS.

NOTHING:

BEING A PROTEST AGAINST BUTTERMILK.

October 1876.

BEFORE you can fully understand anything you must understand Nothing. Now I fear there are few of you who quite understand Nothing, so I shall proceed to show Nothing in its true nature to any who are wise enough to be willing to learn so much. I venture into this high dogmatic tone confident that there is modesty enough in the substance of my teaching to atone for any boldness in the manner of it.

I shall be quite content if they write, in due time, over my ashes, upon a monument as handsome as may be pleasing to them, HE UNDERSTOOD NOTHING; but in order to set forth as soon as possible my pretensions to such a tribute, I will now at once address myself to my theme. Well, to begin, my first proposition, which I fear will not seem very full of meaning to any shallow reader who may chance to be wasting his time in trying to follow me, is this—*There is no Nothing*; *everything is something*. Now don't be in a hurry, and say, 'Nonsense: the

lowest, meanest truism!' as if you had sufficiently considered this simple truth, or 'truism' if you like, and learned it in your eggshell or taken it in with your pap, and so on. The fact is, you or I may fall short as to the fruits of very primitive truths because we learnt those truths in such a baby-stage of our existence that you or I, ever after, know them only and understand them only as a child. But now we are men—that is, supposing we are—let us see if the knowledge we have of this primitive truth may not pass from child-knowledge to man-knowledge. And before differing again, remember, please, that those often are quickest in differing from one who have least power of apprehending one's meaning.

What I want to do is to trace out to some of its results the natural disposition of man to give a positive form to negations and treat Nothings as real things. You come on from your childhood, in which time you belong rather to Nature than human nature, and pass with your childish notions of Nothing into a man; and still childishly and naturally thinking, 'Here are things and there is Nothing,' you enter into the preternatural, human, factitious world, commercial, fashionable, religious, and philosophical, in which, although you are perhaps a bit bewildered, yet you have to find out as best you can that reality in Nature is one thing, and reality in human nature is quite another thing. So that whilst Nature always con-

tains *things everywhere*, various things, one here, another there, human nature sets up negations or *Nothings* into positive form, and works with Nothings as if they were things.

For Nature has none of the negations which form the negatives in the human mind. Once somebody said, 'Nature abhors a vacuum,' but Nature is simply indifferent to a vacuum. The only thing that is not indifferent to a vacuum is the thing that invented it; that is, the human mind. Human nature abhors a vacuum; it reminds us of hunger we could not satisfy, &c. If by a vacuum you mean a space containing Nothing, don't impute such an affair to Nature; no one ever met any such an affair in Nature. Empty any vessel, say a glass receiver, take out all you can from it, suck out the air from it, and it is still as full as ever; it is only now filled with thinner stuff. In the most perfect vacuum ever made Mr. Crookes will push his radiometer round with the substance your vacuum is full of, stiffening that substance into light-rays, or, as others say, into heat-rays—rays, at any rate, substantial enough to set the radiometer in motion. The luminiferous ether still is there, and the material whose vibrations cause heat. At any moment of your life when your senses are active they will reveal to you a world of solid and fluid things whose places depend on circumstances. You push a movable solid thing through the air, and it 'moves on,' as you say; that is, afterwards the solid is where the fluid air

was before, and the fluid air is where the solid was before; solid and fluid things have simply changed places under the impulse you gave. As a child you think only of the solid and forget the air. Air, indeed, is the child's Nothing. He does not recognise it when it is still. When it rushes by he calls it wind; when he draws it into his chest he calls it breath. But we must get completely rid of the ignorant idea that in Nature there are 'Things' here and 'Nothing' there. In Nature all parts of the World are equally full, whether they appear to you to contain solid or liquid or air, which is the child's 'Nothing.' The air is as real and as full as the solids, if less dense. The smallest point of it might be magnified to infinite extent, and you would never attenuate away its reality or see Nothing in the chinks between its atoms; that is, so long as you kept from introducing your own ideas into the observation—a superhumanly difficult performance, by the way. There is no Nothing in Nature; unoccupied space or 'Nothing' is a dream of human nature.

Nothing is a peculiarly human production; human nature invented Nothing. Human nature may be said to have arisen when men learnt to set up negations into positive forms, and man lives in a vain show and disquiets himself in vain because he set up negations into positive forms and made desires take articulate shape; desires being the sense of want or negation; and desire-

articulate was a positive form given to the negation or sense of want of the thing wanted when man uttered that negation. He wanted sweet, and the articulate desire was an utterance of 'not sweet;' and thus he set up an opposition, sweet, not sweet—white, not white—good, not good—life, not life—and so on. A peculiarly human opposition; the positive on one side, and the negative of that positive on the other side; and some of these negations being wants of things which human nature thought very desirable, it even gave quite distinctive names to these negations, such as 'bad' to not good, and 'death' to not life.

But Nature has no such opposites as these. In Nature varieties of reality exist; no opposites like white, not white, exist in Nature. In Nature the varieties of reality may so come under our observation that we see what we think opposite things—say a white swan and a black swan. But what I want you to attend to is, that whilst Nature shows you a white swan, she never shows you a swan that is not white; she shows you a grey cygnet or a black swan with a red nose at the root of its bill; *something that positively is what it is, that is what Nature shows you.* You may choose to say the black swan with a red nose is a swan that is not white if you like, in your foolish human-nature way; but Nature has nothing to do with the not-whiteness of the swan; she has a positive blackness and red-nosedness in

her swan, and cares not the least as to your 'idea' of not whiteness any more than that her swan is not green cheese if you choose to think that. The *opposites* in our minds are *Thing and Not-thing*, but the opposites in Nature are *One thing, and Another thing.* In other words, Nature offers alternatives, and never opposites.

But my very thoughtful reader may say, 'Oh! this is dreadful rubbish; why, this Professor of Nothing would tell us that Nature is indifferent to not-whiteness and to negatives generally—say to not-greasiness. Now the other day I had three poles in water, two greasy ones and one not greasy, and the two greasy ones were not wet, but the one not greasy was wet—was wet because it was not greasy. How, then, do you mean to say that the real pole was indifferent to not-greasiness? We have no patience with such stuff. We don't want your candle to help us find the daylight.'

Ah, poor fellow! I reply, he is so taken up with things he cannot understand Nothing. With his bright daylight he would never believe in stars. Perhaps it needs the creeping dusk of later years in us old fellows to make one sensitive to other light and to know the nature of light and darkness. He is a mere child. You see, child! it is only your ignorant animal way of seeing your own peculiarities in other things that makes you talk of such absurdity as not-greasiness wetting a pole. Of course it was the water

that wetted the pole. And there is in the pole no such thing as a not-greasiness, any more than a not-green-cheesiness. Be patient, and I will show you how you are obliged to think the way you do. It is all your human nature which you cannot help attributing to Nature. Thus, knowing by experience the use of greasiness against wet, your human nature, which differs from Nature in its capacity for anticipation and desire, has a desire of greasiness on the pole, which desire is a want of, and therefore a sense of, the absence of greasiness; and in the form of desire this negative want takes a positiveness in your human nature; your human nature positively feels the negative want, and you have worked with such negatives in positive form, until you actually find yourself uttering such preposterous absurdity as not-greasiness wetting a pole. True, such positive negations give to human nature new powers beyond Nature—powers of anticipation and will which in time have made man an agent capable of vastly altering the face of Nature on parts of one planet. For by these powers man formulates anew the conditions of Nature, something in the same way that algebra formulates anew the conditions of arithmetic. So that human nature in a certain way stands to Nature as algebra to arithmetic.

But when your human nature attributes these negational formulæ to Nature which is not human nature, then your human nature

makes big mistakes in the not unimportant matter of the relation of your human nature to the Universe, which is the subject of Philosophy. It is a peculiarly human nature view of cause which sets effects down to negative conditions. It is because we are distinguished from Nature to feel and formulate desires, and thus to fulfil her otherwise unperceived and unfulfilled possibilities, that we recognise negatives, and by (human) nature treat them as of positive efficiency; and mixed up as we are with Nature, we impute our negatives to Nature herself, whereof we are but a kind of bad reflection. *Instar Speculi inequalis ad radios rerum.* Bad, that is, unless we are turned out very carefully, and always cheap, because we are so easily replaced, and our human nature reality is a reality like that of the World 'through the looking-glass.'

How much high philosophical discussion might have been saved if these simple facts about Nothing had been recognised, making clear the separation of logical subtlety from inquiry into Nature, the positive and real in Nature receiving its true valuation, and the negatives seen to be mere human devices. Even very great and illustrious philosophers have been so apt to go mixing up positive and negative and treating them as if they were equally real. Take, for example, the method of Socrates—say the discussion at the commencement of the 'Republic' of Plato, where he lays all his questions as

between alternatives equally positive in form, but one of which is a negative, justice—injustice, and so on. If you see this you find it is the source of nearly all the difficulty he raises, the truth being that 'justice' signifies and is a positive state of things. It means the accommodation of existing facts to actual laws or else to your actual sense of right. A positive state of real affairs. But injustice is a negative, and cannot be recognised and aimed at in a positive way in real Nature. A man may follow justice according to his notion of it, but a man cannot form a notion of injustice and follow it. He can aim at a mark, but he cannot aim at no mark. To give what is undue is not a possible aim. In any issue a man never aims to be unjust; he may be unjust, and often is so, but this is not because he sets before him injustice as an aim in the same way that Judges make justice their aim. It is rather because some other aim of a positive sort, as positive as justice, but at the time in that man more powerful than justice, such as revenge, love, covetousness, &c., is diverting him from observing to keep the due balance of justice. And it is this want of perception of the chasm between Nature reality and human nature reality in Plato which partially justifies Bentham's severe remark—'While Xenophon was writing his History, and Euclid teaching Geometry, Socrates and Plato were talking nonsense under pretence of teaching wisdom,' although that

remark revolts Mr. Matthew Arnold very decidedly. But this confounding of Nature and human nature after all relegates the reading of Plato to the level of an enjoyment, much prized by 'Culture,' since it affords that luxurious phantom the pale delight of raising and welcoming the ghosts of many good old jokes and fine fancies of the mighty dead (none the mightier for being dead, save amongst phantoms), and the further delight of justifiably enjoying its sense of a very gentlemanly skill in the feat.

But although there are still those who would form themselves and mould those they influence by a reverential study of systems of 'Philosophy' in which Nature reality and human nature reality are confused together, yet the tendency of the young minds of the present time is in quite a different direction. In one way we may say that the realities of Nature and of human nature are now widely distinguished from each other, certainly in a way they were not distinguished in ancient systems of Philosophy; but in another very important way there is now more than ever a great and subtle danger of forgetting Nature in human nature, and that, strange to say, in the pursuit of the study of 'Physical Science.' It is this danger I am all the while driving at (aiming to bring 'Nothing' up against it, if you will). This is how, I think, the danger arises:—The results of experimental observations now on record are immense; the

material laws, or 'forms,' as Bacon termed them, to be learnt by a young man are numerous; so that a very large part of his time and attention is necessarily devoted to these 'laws of Nature' before he can satisfy the demands his seniors put upon him. But these 'natural laws,' although obtained by their original discoverers through the most careful study of Nature on the experimental method, *are not Nature*. They cannot fulfil the place of Nature towards the student. And he who fills his mind merely with them is not therefore a student of Nature; neither, as a man, does his mind by their means *thrive all round*. Why, see! the greatest physical laws discerned by experiment are only applicable to ideal conditions. Take, for instance, the beautiful laws of Boyle, Dalton, Gay-Lussac, and Graham upon the variation of the bulk of gases under pressure and temperature, and you find Dr. Andrews, this year, quoting with approval, in his admirable address to the British Association, the saying that these laws only apply to ideal gases, and that when gases approach conditions of liquidity the laws no longer govern them. And if this is true of such magnificent generalisations as Dalton's laws, how about such 'laws' as those of Nerve-physiology and Nerve-pathology, when the College of Physicians lets some one come and drive about in the usually recognised generalisations until all that you have ever learned appears to be mere matter of obstruction in the

way to Dr. Brown-Sequard's new chaos? The College might have been more kind to its 'science,' and dealt gently with it, like Nature does—Nature who, in her quiet way, has a sort of mortmain law, so that she rots bad generalisations out of the memory of man. Unfortunately, though, good ones accompany the bad sometimes.

Recognise, therefore, that the generalisations of physical science are not sufficient to make a man of you. The greatest, grandest of them are, with exceeding few exceptions, grounded on negations with which, as I was just now urging, Nature has nothing to do. Nature is manifold and infinite, and has no Nothing, and is never quite true to generalisations which include negation in their basis (and perhaps only Newton's laws of gravitation and light are quite free from negation). Therefore, few of the grandest generalisations can be quite trusted to in the real problems of Nature. The alternative power of Nature laughs to scorn your human-nature negation, and gives your mighty generalisation the slip; slips out of the hole in the grounds of your law (a negation is always a hole which Nature's realities slip through). Therefore, you who have yourself to share in Nature's real and positive work as a man and a Doctor, be much with Nature herself; mix in the things that are going on in your future line of life, and let all your faculties have full and fair play, that you may be educated in all your powers. Your

examiners will, I think unhappily, compel you to have a full cram of generalisations, 'laws of nature.' It is the pride of our age that there are many very trustworthy and sound generalisations which worthy predecessors can hand on to successors. But, alas! there is a vast heap of trivial petty and fragmentary and doubtful generalisations which you will be made to learn in your great big books. Study well your books, but things teach more of you. Books tutor your reason; things tutor also at least your imagination, and if you are observant will store in you a fund for all your faculties, from fancy up to faith. Students must be fed on very concentrated intellectual food in their books, but the amount of it should bear some proportion to their time and powers. Soon they will be like so many maggots born so very deep in such very big nuts that the poor things never or rarely succeed in eating their way out to wings and daylight; perishing thus miserably short of a higher life because the supplies of their larval stage were too voluminous. Such abortive book-worms the Colleges are trying to make you all. Help yourselves, or God help you! Read with judgment, and use your senses well. Your books have no right to do more than suggest, guide, and aid towards your work in the real world you are to become meanwhile a part of. The man who only crams his 'mind' with the trivial generalisations that swell up your volumes too big gets a peculiar look of

the species of dissipation that is quite characteristic. Blankish, awanting, abstracted, and with a certain unreadiness on the present occasion, whenever that may be—why, even the animal young man from the turnip-fields who hangs about our Fives-Court is wider alive than he.

The combination of sensations (John Hunter's expression for the origin of mind) which this world produces on your senses is the *raw material of your own particular mental life.* And your mental machinery has to work it into a fabric more or less beautiful or otherwise. And this *raw material* is as much the property of the most uneducated as of the most highly educated, if only observation is equally careful and affectionate. All good observation is done with affection. The greatest philosopher only works upon his own collection of raw material (this is much more true than you may allow). Your Teachers cannot teach you, they can only help your senses to teach you. I have a thousand times wasted my efforts telling people what they could not know, because their experience had not given them raw material for it. Well, now! look at the present state of affairs as they stand before a student:—The 'laws of Nature' of all sorts he is asked to learn are insufferably numerous; insufferably especially because they are mostly so trivial and crude. Little bits of science are now made so much more of than they are worth. It is

the age of such a cheap press that everybody publishes his little new fact or notion. No one keeps to himself his little ideas until they are either established or, as more likely, dissipated. If he gets a notion, off it goes to the public press as to a stock exchange, where he tries to discount it for credit before next week shall explode it. The cheap press makes them all write. Just as cheap railway trains are always taking people about on little silly journeys where, in a properly stationary world, they wouldn't want to go—this only uses up coal. But the miserable hasty generalisations that crowd into our cheap literature spoil human brains; now that the young man is made to know elaborately these wretched generalisations in an elaborateness altogether beyond their value.

Is it not as true as that '*The King himself is served by the field*' that science is dependent on the devotion of its votaries to Nature herself, and that the young votary must be allowed to reach Nature herself before all his ardour is expended, and before all his brains are worn out in conning the scraps that everybody has prematurely printed. Therefore, I protest, as all my life I have protested, against occupying the best part of a young man's life with the elaborated details of everybody's results, embodied in half-digested trivial generalisations. The Orators of our Annual Medical Eisteddfods (there is a sort of out-of-the-world Welshness

about Physic somehow) tune their eloquent harps to make little things sound big. It takes, too, more time and attention to learn a little thing than a great one; and it is more than half a sin to embarrass with trivialities a real young man's real life, as his seniors do when they oblige him to worry over half-digested, hastily-published 'observations.' These wise foster-parents! who stuff you with their thin buttermilk when you want meat.

The cheap press pours out the crude details contributed by little people; and other people no greater, except as more voluminous, sweep up the details into books of ever-increasing size, from the last edition of your once portable classbook, through So and So's system of large books on medicine, up to Ziemssen's regiment of tomes. Heaven help you! Can a cheap press multiply your precious moments? Is Ziemssen to take the place of the Nature you are, after all, a part of, and which solicits your attention and your labour? Out upon it! Will nobody condense these gallons of wretched buttermilk? Thank God for the help Nature will bring you—dear, quiet mother Nature! The true loving mother, she will protect you young ones. In her silent way she has a Mortmain law. The dead becomes at last powerless. Corruption will overtake the buttermilk. *Dies iræ*, but *Lux Æterna*. There is a good time coming.

I am not at all excited. It is time to be

earnest, and earnest I am. At Guy's we try to teach and encourage you to learn things rather than words. The recent results of examination may show that on Buttermilk standards our products are not sufficiently bulky and thin to be rated at the very top. Unfortunately, I think, all our Examining Boards are conspiring to make the test of rising excellence turn upon a cram of ever more microscopic trivialities; and the London University, still more unfortunately, even goes so far as to carry on its examinations on a system which ensures its much-coveted prizes to those men who are crammed with the particular examiner's own peculiar trivialities. If you doubt this, look at the results! See what schools get the prizes, and observe at what schools the examiners teach. The examiners cannot help it; they believe their own trivialities; they cannot even know those of every one else. Let all who are responsible for legislation in this matter observe the signs of the times. Science is not very well. Dr. Andrews, in his address to the British Association, speaks of the alarm that has arisen in England and elsewhere at the decline of Science, and then eulogises 'Poggendorff's Annalen.' But I believe Science is over be-Poggendorffed. The annals of all sorts cast scraps into the intellectual atmosphere, until it bids fair that Science will be smothered in the dust of her workshop; even in the cleaner halls thereof, where her purer pursuits are followed; much

more in the Medical Department, where her job is so dusty that you would hardly know Science when you meet her there. No wonder she shows symptoms of decline. Somebody lay the dust. Not so many scraps about. That the Boards do settle for us what things do constitute real knowledge. That examiners leave off encouraging trivialities, and sensible men get credit for their judgment and power. Look at the discussion between our teachers on the most important subjects of our study, such as Tubercle, Pyæmia, &c., and then consider how is a student brought up under Professor A to stand examination by Professor B; and in honours tell me whose pupil will stand first.

I wish I could help you. You can do a good deal to help yourself. Learn with a discrimination of the true significancy of things taught, and judge of them by obtaining experience of your own as soon as ever you can and as constantly as you can. Make good use of your senses. *It is your senses that keep you sane.* Not the kind of sense which you speak of when you say, 'Johnson is a sensible young man,' but your 'five senses,' that show you the real world of this present moment. Those five senses which, when sleep closes them, leave you such a foolish trifler as you are in your dreams—(excuse me)—which foolish trifler you surely tend to become if you don't make due use of those senses when you are wide awake—

(are we ever *quite* wide awake?) Your animal senses will keep you sanely belonging to Nature if you give them fair play. Her strong impressions upon them will start up in your mind, and raise analogies amongst the things you have well seen and heard; and thus you will become endowed with a healthy imagination, a spontaneous uncoerced natural supply of images and records within your power at any time, and these will start up in your course of thought as real instances, whose consonance will increase the vividness and richness of your ideas. As when the vibrations of sound enlist in their movements the little stones within your ear, and so exceed themselves in their influence upon your hearing. For just in the same way thought is increased by the things in the mind which it is able to throw again into vibration. Hence the value of Metaphor. No thought is ever strong and true which does not thus arouse something into unexpected harmony.

But to be well experienced by keen observation of natural things will help you to anticipate practically the course of things you yourself are concerned in. And this by a kind of instinct requiring little voluntary effort. Because the works of Nature are done on such similar methods in all her fields of operation that what happens in one is full of analogies with what happens in another. So that almost unconsciously and by habit your senses adapt themselves to and can anticipate the successions in things, and

prompt you quickly in thought and action. Even the 'lower animals' who have no science acquire an insight into so much of Nature as concerns them; an insight which would often shame the capacity for folly which some learned Savants show in matters wherein their own interests are deeply concerned.

In short, the earnest and affectionate observation of Nature endows you with *Imagination* and *Intelligence*, and these two are of infinite value *to you*. They are, for home consumption the best part of you, whoever you are, the best part, I mean, of your own individual self which your mother loved, and which those who divide it into mind and body don't love a bit. Imagination and Intelligence keep mind and body together, and keep them keeping each other bright. For dealing with real duty in the real world we don't want all our intelligence to be fine drawn into intellect. It does not do to draw out the whole mind into set lines of pure reason, even though those lines be planned on the soundest of experimental methods. Your Intelligence should be greater than your reason, or you are a lost man. If you don't keep Intelligence enough to use, and, on due occasion, to smile at your reason's finest products, there will be other people who will do both for you, unless you are most obscure and forgotten. Read the *Times* just now and see whether his trained reason brought up to the high finish

of our modern experimental intellect can save your F.R.S. when his senses are weak and deluded,—the spiritualising F.R.S's., I mean, who have acquired such confidence in the experimental method, as practised in Physiology, that they are ready to hold a 'Séance' with a conjurer, and to draw conclusions from matter to spirit on the strength of his tricks. More Intelligence in proportion to trained reasoning would save us an omen so humiliating to any who had hoped that a great future lay before Humanity through scientific acquirement. But the truth is, mere training in science will not make a man of you. Science belongs to your Race, Intelligence gives you a self. A Savant may hold a good place in the Race and yet be a fool, because he has not kept enough Intelligence to give him a sound sensible self. Follow science for your place in and your duty to the Race; but remember, O good Student (I am not writing for idlers or triflers, the persons who hang about the Fives-Court when they are not playing and the Colonnade when they are not working), that the better the self your Intelligence develops in you, the greater will be your value as an individual amongst other individuals in any group at any time. Your learning, all your teachers ever taught you, gives you a unitship in such and such a place in your Race. But you will yourself have to make it rich and good by what your own five senses can store from Nature as

a fund for your Intelligence to use in the current life you belong to.

I am not now extolling that forward progress of the Human Race in the knowledge of Nature, of which progress the said Race is so proud. I am not speaking for the Race; the Race is strong enough to take care of itself. I am a Physician, and therefore I have charge of the good of Units as against the Race, which is always trying to displace them in favour of new Units its profusion has produced. Such opposition to the Race is the function of the Physician. Therefore it is that he is not, and never will be, in great consideration in the Race. So that from all the higher 'honours' which the Race can bestow on its warriors and lawyers he is shut out, having a Baronetcy handed to him now and then. To accept which is, from my point of view—a view founded on Nothing, as you have seen, I admit—to accept which, I say, is, from my point of view, derogatory to the highest sense of a Physician's true function and kind of honour. (The Race has never offered me a Baronetcy.)

However, don't let me be distracted by the contemplation of worldly grandeur from my true text, which is that the voice of Nature says always, 'I am that I *am*,' whilst every man is not only what he is, but also very much what he was, together with a sort of sense of something a-coming like that which keeps you watching a bad play. Both which relations of past and future reflected

upon that present, which he shares with Nature as far as he is what he is, introduce the Nothing into human perception and expression. And thus it is that a certain vanity foreign to Nature characterises the human nature world, commercial, fashionable, religious, and philosophical.

PILOCEREUS SENILIS.

HOW SHOULD WE STUDY MEDICINE?*

Ἐὰν τὸ παρὸν ἐνεργῇς, ἑπόμενος τῷ ὀρθῷ λόγῳ ἐσπουδασμένως, ἐῤῥωμένως, εὐμενῶς, καὶ μηδὲν παρεμπόρευμα ἀλλὰ τὸν ἑαυτοῦ δαίμονα καθαρὸν ἐσκῶτα τηρῇς, ὡς εἰ καὶ ἤδη ἀποδοῦναι δέοι· ἐὰν τοῦτο συνάπτῃς, μηδὲν περιμένων, μηδὲ φεύγων, ἀλλὰ τῇ παρούσῃ κατὰ φύσιν ἐνεργείᾳ, καὶ τῇ, ὧν λέγεις καὶ φθέγγῃ, ἡρωϊκῇ ἀληθείᾳ ἀρκούμενος, εὐζωήσεις. Ἔστι δὲ οὐδεὶς ὁ τοῦτο κωλῦσαι δυνάμενος.

—IMP. M. ANTONINI, III. 12.

GENTLEMEN,—When we begin anything, whether it is a course of study, or a lecture introductory to one, the first thing we have to do is, to take a clear and comprehensive view of what we intend to achieve. We are beginning together. When I have ended my little task, I shall only have made clear to you what a great task you will have but just begun. I have settled what I mean to do, and it is this:—To give you the same help in your first duty of preliminary survey as these my colleagues will give you in all the steps of your further progress. And I will commence by offering you advice which I know each of them will repeat in his turn:

* The lecture introductory to session 1868-9, Guy's Hospital.

—Don't let what you hear from me stand to you in the place of your own thoughtful observation and inquiry. Think out your own view of the profession honestly, liberally, and truthfully.

There is this difference between starting life as children and starting life as men: —that as children we find ourselves in responsibilities that we did not undertake —we are placed in our respective cradles without the slightest consultation of our feelings or preferences; but as young men we choose deliberately what kind of citizens we prefer to become.

Perhaps we have all of us sometimes thought it rather hard upon us that we should be launched, whether we like it or no, and made into little boys without having a chance of first of all taking a good look at the sort of life we are to lead; and we flatter ourselves that if we could have had a notion of what was coming, we should have been better boys, and left undone many naughty things that we ought not to have done, but did do, and done many things that we ought to have done, but didn't do; and so we make a very reasonable excuse for ourselves. But now you are making a greater start in life than when you were first cradled, and you have the privilege—and you must use it too—of looking well before you, and seeing what you have to do, and preparing to do it as well as you can.

Before we commence some trade or pro-

fession we are like social fœtuses. The progress of social development is also from the general to the special. There is an absence of what is called differentiation in boys, corresponding exactly to what physiologists tell us of in the early development of mammals. They tell us that a rather clever man cannot at first say whether the little creature is going to be a cat or a monkey, and this doubtful state hangs about it until it gets its teeth and nails, and the rest of its means of working for its living, and then any one can see what it is. You see, the characteristic qualities come when a thing has to do its real work in the world; and when these come out, the more general (and hence useless) qualities, which had been upon the surface hitherto, go out of sight, to be hunted after by comparative anatomists. Now, in just the same way we are, as boys, all one with the rest of boys, and show the same general but useless characters which we share with young clergymen, and lawyers, and merchants; but now that we are to differentiate into doctors, those boyish appearances and manners must recede into the depths of our nature, and we must develop the qualities of physicians and surgeons.

It is plain enough, that the calling which a man is trained to does require a growth of some of his faculties and tastes, and a suppression of others, until he becomes adapted in the kind of his intelligence and

degree of his activity to the particular sort of duty he has to do. Every man's mind is like a little Darwinian world, in which different ideas struggle for existence, and those maintain their place in living thought which are best adapted to circumstances. Reason in your minds must take the place Man takes in Nature. It must aid in the struggle those ideas which are most profitable and suitable. Society makes room for the arts she requires, and she demands such people as can fit themselves to the spaces she allots. I don't know why else you should name them 'callings.' The very character of the person required is prearranged in the space left for him, and all the corners of that space he, or somebody more suitable, will fill. Some of the avocations in which men are forced to spend their lives offer little encouragement to the higher faculties of human nature. In every trade, and in many professions, a man, if he is to be human at all, must rise above his calling. But I can congratulate you on having chosen a vocation which must be always above you, demanding of you to the very close of your lives further advances, and at the end leaving you far from being complete physicians. I would not disparage the men who follow other callings than our own. The business of a man's life is done between two powers: one is this power of society, whereby he is moulded to the place he takes; but there is another individual power, which always tries

to be better than the world wants him to be. Now, this last individual desire is equally strong in all sound men, and it has often raised, and will raise again, many a man far above the height of personal worth and grasp of knowledge that his mere avocation requires. But I may compliment you on this, that the social need you are going to serve will join with the best wishes in your nature to demand of you that you be good men.

We contrast trades and professions as if they were different, and yet I am not sure that the distinction betweem them is very well defined. I shall not attempt to give a definition of a profession, but content myself with pointing out this—that every calling which deserves the name of a profession has this character which distinguishes it from trades, that each member—for himself—directly uses general principles in the practice of such profession. He must be free to follow general principles on his own judgment and responsibility. If he follows stated rule, he is an artisan. If his course is dictated by the laws of commodity, he is a trader.

I want your special attention to this freedom of individual judgment which you have to fit yourself for. No man who is not worthy to be free has a right to enter our profession. This free, ready, original judgment you will have to use on all occasions by the bedside. It will be the very substance and the test of your value in the world.

Now, I want to warn you of what may spoil you in the making, if you don't take care betimes. It is a very insidious danger, and it threatens all the more seriously because it is brought upon you by very friendly and trustworthy, but far too numerous, powers—I mean that crowd of Council, and Universities, and Colleges, and Faculties, and Halls, in irrelative repetition, who, to the disgrace of our country, will compete for you like so many mother birds struggling over a nest while the eggs cool. This is the danger:—You have to get, and store away in your memories, a vast quantity of knowledge. I tremble for you when I think how much, because of the great danger that this bulk of knowledge may be too much for you, it may sink that individual judgment which you must above all things maintain. Knowledge is fuel, not fire. It is excellent fuel; but, by order of the Colleges, it will have to be thrust into you in heaps, and, unless you take care, it will smother the spark of active intelligence which, if the fuel is added with proper care, will light it all ablaze, to glow upon and cheer your future patients. Mind the fuel does not come faster than you can master it, or you will be more like a coal-scuttle than a fire. Knowledge is but a body, of which intelligence is the soul. I fear lest you get more body than you have soul for. We want you always to be more than your knowledge, that you may be equal to the

handling of it. Let us look together well at this danger, that we may see how it may be overcome, and even turned to excellent account.

First, see clearly your critical position. These very noble and esteemed good—but, as I said before, unmeaningly or extortionately numerous—masters, the Council, Universities, Colleges, &c., as before, are just now placing their hands to your shoulders, and they will bind your freedom, and do with you what they will, and make you, instead of the free-breathing creature you are now, into a machine, while you are, as it were, beside yourself in a sort of abeyance for four or five years; and then they will hand you over the machine to drive where you think you can make the most of it.

Now, before you plunge headlong into Anatomy, and Chemistry, and Zoology, and Physiology, and Comparative Anatomy, and Botany, and Materia Medica, and Pathology, and Hygiene, and Medical Jurisprudence, and Morbid Anatomy, and Midwifery, and Surgery, and Medicine, and all the rest, pray be quite sure you know what kind of a thing it is to learn. We human beings are a preposterous race; we do things hind-side before: why, see—we first talk, and then learn the art of language. We first reason, and then we learn the art of logic. We first learn, and afterwards we study the art of learning. Now, for once, let us be beforehand, and ask, What is it to learn?

I will so far answer that question as to tell you a few things it is not, which it yet is apt to seem to be, because of the collateral meaning of the common words we use when we speak of learning.

Why, the very words I began with are examples. I said you would have to *get* a *store* of knowledge. And again, for another instance out of many, we speak of a man's *capacity*.

These are bad words, gentlemen. We must learn not to look upon knowledge as stuff to store into capacities as if the relation of knowledge to the mind were the same as the relation of old curiosities to a lumber-room. No! It is not capacity and storage. The knowledge that enters does not find room, it makes room. It is poor, stunted stuff if, when it gets in, it does not grow. It will make poor growth if it does not grow in harmony and adaptation to what is already there, and unite and develop with it. The educated mind is not a stuffed bag. It is true of the mind as it is true of the body, 'It cometh forth like a flower,' though it is never cut down. The mind is a growth.

Let me here warn you against a pestilent folly that some young men are liable to. You will meet foolish young men laying themselves out to get a reputation for a large unfilled capacity, or, as they like it said, 'A very clever fellow, but he doesn't work.' As though a general should glory

in the little he does with such a great army. But it is all imaginary. Never believe him. It is an empty boast of a sham flatulency—a very vanity of vanity. The mind is never bigger than what it holds.

Sometimes we say we learn by getting the seeds of knowledge. No, that is not it; it is not even the seed that enters. The mind is not a mere soil for seeds to play pranks in. I will tell you what it is rather. The book or the teacher gives you vivifying elements which you have to receive with a responding activity. That is what I mean. Your function is receptive activity. You must take what you hear and read, not like a money-bag gets a shilling, but as the germ receives the pollen, *with receptive activity*, and then in you will form a growing seed of knowledge with a whole active life before it. We shall impregnate your minds, and the knowledge begotten will take in you a new lease of life, and come out in forms like the father-thoughts that begot them, but we will hope a little better that the race of living knowledge may improve. And then yours shall breed a yet better knowledge in those in whom with equal love it propagates itself.

Such, gentlemen, is true learning, and I wish I could hope that all you acquire in this theatre will be thus a flourishing and harmonious growth. But I am afraid it will not. For whether they are misled by the bad words I have held up to you or not,

most men seek knowledge as if it were to be taken, like nasty physic, in spoonfuls; and some teach it as if it were to be administered after the same fashion. They ignore this great truth, which please write down:—

Nothing is established in the mind, except as the answer to a question asked by the mind.

And so the student falls asleep over his book, because, forsooth! he has no interest in a fact that some one spent half a life in discovering. Why is that? The student is not asking that question which the discoverer asked. Pray see that each earlier step in knowledge demands the next, and prepares for it a definite question. If it is not so at any time, then know this, that you have not done well what you have done before. You have muddled the natural course of inquiry, and hence you ask no definite question. And how can you care for or keep an answer? You feel you seek in vain, for having, you cannot hold.

So you complain, poor fellow! that the inquiry is difficult; which is absurd, for inquiry cannot be difficult, for inquiry is interesting. And *interest neutralises difficulty as alkalies neutralise acids.*

The lecturer, or book too, on the other part, is apt to put what has to be taught without regard to whether or no the student is ready to ask for the answer he is giving. It is so difficult for a teacher to remember how he got what he has got, and how long

he was about it. Having slowly mastered his own ignorance, he forgets that he must with equal patience struggle with that of others. So he gives a lot of answers when the student has not framed the questions, which is as though he took cuttings from his best exotics, and stuck them in the poor student's cabbage garden, where the soil is not yet enriched with the mould of thirty years' learning.

Such, gentlemen, is learning in relation to the mind of the learner. But that is only one side of our question, 'What is it to learn?' The other side of that question is, 'What is learning in relation to the thing learnt?' or 'How does the kind of science or knowledge we are studying affect our ways and means of learning?' This is the vital question of to-day, 'In what way must we study medicine?'

Let us quickly glance at some sciences, to compare their main features, and keep in view at the same time the great practical aim with which we all enter here, the knowledge of what are called the 'sciences' of Medicine and Surgery.

Sciences come under three great divisions. Let us look at a type of each.

Firstly, Mathematics is a type of a pure science; it is pure reasoning. You go from step to step without any conscious reference to anything outside you.

Secondly, Chemistry is a type of a science reasoning from the facts of nature. You

cannot go a step without direct reference to the substances of your chemistry. You must use observation as well as reasoning. But so well are the chemical elements known, and their laws of combination ascertained, that a young chemist's reasoning goes hand in hand with his observation.

Thirdly, Zoology is a type of an entirely different sort of science; for just as mathematics excludes observation, and is pure reasoning, so zoology excludes reasoning, and is pure observation. You do nothing but observe, and compare, and classify the objects of your zoology.

Now, every true science is like one of these three types. Let us inquire to which of them the so-called Science of Medicine belongs. (I use the term 'science of medicine,' and I intend it to include two things—first, the knowledge of diseases, scientifically, if possible; and, secondly, the knowledge of remedies, scientifically, if possible. The art of medicine is the application of the second knowledge to the first.)

Now, let us lead up the knowledge we have of diseases, and see whether it corresponds to any of these three types of science.

First, Is it like Mathematics? Well, plainly, no. With mathematics and its like, as a study, we have nothing further to do; they did their work in us, for better or for worse, when we learned them at school. They did this for us, they practised us in concentrating our whole thought on each parti-

cular step in a train of reasoning, to make it sure that we might leave it, and go on and concentrate on the next step in confidence that all before was sound. We now must leave their application to the actuary and land surveyor and mariner.

Secondly, Is the science of diseases like the science of Chemistry? Well, no. It is true that as drug-prescribers, and so forth, we must deal directly with chemical knowledge, and must know it practically and well. But that is quite another thing. There is no science of diseases like the science of chemistry. The characteristic of chemistry is, that it is constructive from the elements of nature, as mathematics is constructive from the elements of thought. But we have no constructive knowledge of diseases. We do not know how they are put together, how they are caused.

Well, then, for the third time, Is there a science of diseases comparable to the science of Zoology? Can we lay out before us the facts of disease as in a museum, and arrange them in natural orders and genera and species, as a zoologist does his animals? Why, we can try, and we do try; but our first attempt is crossed by this strange difficulty, that we cannot quite know what the things are that our science is to be about. A science of diseases. But what is a disease? Very able and learned physicians, great pathologists, and men we are proud of have recently been writing on the

question, What is a disease? The question is very simple. A baby might ask it. But the answer is so cloudy, the doctors don't seem to understand it. But, you say, surely we have a knowledge of what we mean when we speak of a disease. Well, let us take a 'common-sense' view of that knowledge.

Practically, to us, a disease is—what we know of a patient's malady. But see, we know in three degrees of penetration, as it were. This is what actually exists in any patient, a cause of a physical change that induces suffering.

Now, if we knew cause, and physical change, and suffering, if we could apprehend the whole disease, then we could compare one with another, and make a sort of zoology of them. But most unhappily this is the rule:—

The suffering the patient knows;

The physical change the doctor knows; and

The cause God alone knows.

Well, but even then, you say, if the doctor knows always the physical changes in his patients, if he can go up to and make out the changes of tissue in the living person, then he could classify those tissue-changes, and make a sort of quasi-zoological morbid anatomy of his living patients. But unhappily too often he only knows as far as the patient (without the patient's certainty), and cannot get beyond the patient's story of suffering; and equally unfortunately for the

classifying purpose, he sometimes knows the cause, which is usually hidden.

And hence arises a confusion which has never yet been extricated. He cannot classify diseases, because what he knows of them is not comparable knowledge. For while one disease is a pain in the leg, and another a growth in the stomach, and another a spider in the skin, the classification of them is worse than mixing incompatibles—it is mixing things indifferent. It is like trying to mix the solar spectrum and the key of C major with essence of peppermint. Many diseases are not certainly real, and many are not distinct from each other.

And no zoology could exist where species are not distinct. There is no zoology of mongrel dogs. And no zoology can exist where the creatures of it cannot be directly observed. There could be no zoology if a bugbear and a griffin might for all we knew be as real as a lion or a tiger.

But, you say, what business have I to rise up and say that such and such are the types of science, and what is not like one of these three types is no science. And you say, Have we not many sciences besides these? Is there not the science of anatomy, and the science of physiology, and of materia medica? Well, let me speak plainly. Anatomy is not a science. It is no more a science than a coachman's knowledge of the way about town is a science; and, believe me, it is only to be got as a coachman gets his knowledge

of the way about town—that is, by going over the ground yourself with all your wits about you.

And then, physiology. No more is that a science. Pray give me your attention for a minute or two, while I lay before you its relations to science, because it is through physiology that medicine comes nearest to the sciences.

What is physiology? Look at it. It consists of a knowledge of the different systems of the body—of the muscles, myology; of the nerves, neurology; of the glands, &c. Now look at any of these:—

Myology is—

1. An account of the structure of muscle.
2. An account of the growth of muscle.
3. Certain problems in mechanics.

Neurology is—

1. An account of the structure of nerves.
2. An account of the growth of nerves.
3. Certain problems in electricity.

And so the physiology of the gland systems consists of the history of the structure and growth of glands and certain problems in chemistry.

But physiology must not claim to be a science, because it borrows of chemistry and mechanics. It must render unto chemistry that which is of chemistry, and then be judged by what remains intrinsic and proper to itself. Now, the scientific part of physiology is made up entirely of those chemical, mechanical, and electrical problems that are

wrought out in the body. And the accounts of structure and development, which alone are proper to physiology, are so much mere narrative of matters of fact, which we tell over like a tale—a really wonderful, and often a beautiful, and always a highly interesting story, but still only a narrative. We have no reasons for the changes, and no general characters for the appearances; and so it itself is not a science, it only needs that you be learned to a certain extent in other sciences to follow its stories.

But, you will say, What is it to you whether you are to call it a science or no, so you have to learn it? Why, it is precisely because you have to learn it that it makes every difference to you; and this is why: Because common knowledge of facts such as physiology is cannot be learnt as science is learnt. A man may be a very good mathematician, or a very good chemist, or have a very good knowledge of the classification that composes zoology, who had shut himself up in his study to learn. Because science treats of mere relations, and relations are naturally expressed in words, and are fully and completely expressed in words: words will utter all the whole that science consists of. But no amount of words can teach the matters of fact of common knowledge, which I have shown you that what is proper to physiology consists of. You can only learn these facts by seeing and hearing for yourselves. That is the practical issue

I want to lead you to; you cannot overestimate its importance. But you cannot always see the facts of physiology for yourselves; they require skill and time for their development; and hence I am glad to tell you that in the Physiological Lectures at Guy's, you will have those facts brought practically before you which you cannot show yourselves. So I recommend you to go always to physiology lecture, whether you can get to anatomy or no.

Now, I have shown you that the knowledge of disease is not a science, there is no science of Medicine, and also that the branches of knowledge that more properly and immediately belong to doctors—Anatomy and Physiology, and, much more, Materia Medica—are not sciences but, as it were, bring us down into connection with sciences that enter partially into them, and so serve to link medicine with the sciences.

I hope you will now fully recognise that there is no science of disease, as it is met at the bedside. The so-called Nosology is a mere string of names, for the convenient registration of the deaths in the population, and for similar purposes.

Now, then, comes a cardinal view, which I want you firmly to apprehend; it is this: —You must not study disease as a science is studied; you cannot get the knowledge of disease as you get the knowledge of sciences—in the study—as you get your mathematics, and chemistry, and zoology. You must

know diseases, not as the zoologist knows his species, and his genera, and his orders, by descriptions of comparative character, but as the hunter knows his tigers, and panthers, and wild boars. You must know as he knows —by seeing them, and facing them in their natural states and places. Study individual cases in the wards. The use of individual cases in the study of medicine and surgery is like the reading of biographies in the study of history. You cannot know history except by biography; your schoolboy smattering then becomes familiarity. No other person can give you this familiarity with diseases—familiarity is the word, not mere knowledge. They cannot give it you either by book or speech. The most graphic description of disease is at best like a landscape taken from a railway-carriage at full speed. Or like one of those pictures of glorious battles you see in the print-shops, where the live and violent struggle is chilled into a set of shapes, with every man's hand lifted against his neighbour, without ever coming down. You must see for yourselves—and see assiduously and well. I pity the lecturer on medicine; he is under the greatest of all burdens—the burden of the incommunicable—and you are happy when he is one of those great men who can nearly say what cannot be said.

How, then, you ask, are we to be, in the vulgar sense of the term 'practical men,' and discard science? Gentlemen, all I have said demands imperatively the very reverse.

Such practical men have woken up in the wrong century; they should have lived before.

For see, if there is no science for the practice of medicine, so much the more must we bring the science in our minds, that the order within may overcome the disorder without. For, gentlemen, the human mind is like that centurion in Scripture, who was set under authority, and yet had others under him. Our minds fall under what is methodised, that they may themselves be organised; and they rise over what is unmethodised to organise it. And if, in our daily duty, we are to use our reason freely amidst what is not wholly obedient to reason's law, we must discipline our reason. Here, above everywhere, to be able to command we must have learned to obey. For just as the colonel of irregulars must be a very genius of discipline, so the physician must be the most disciplined of minds, for he too has to use disorderly elements according to method.

This, gentlemen, is the true theory of medical education; we want minds that are at once free and devoted to scientific order. This is the theory, and those who have to regulate, and those, much more, who have to pass through it, should fully apprehend its difficulty. You must see plainly that two opposite things are re-

quired of you, lest your house be divided against itself. First, you must be orderly-minded scientific men; and, second, you must be free to judge what is not capable of scientific certainty. You must not in freedom lose your discipline, nor in discipline surrender your freedom. If you do either, you will turn out to be but an abortion of a doctor, fit only for rough duty in some corner.

Now for a cardinal proposition. It is this: The two opposite demands on you for discipline and freedom must be supplied from opposite sources. Discipline will be forced on you by the Medical Council; freedom you can only get by self-culture. No one can give you this freedom from without, if your freedom does not arise within. In vain the most "liberal" of parties thrusts freedom on you. Those outside yourself can only push you off one master to fall to another, and make you a shifty slave instead of a constant slave. However various the master, to a born slave all is slavery. But, *Servitutem qui contempsit, in quantalibet turba dominantium liber est.* I say you will be disciplined by the Medical Council; they won't care for your freedom, they will cut your garment of learning to their regulation model of a doctor, whatever your figure may happen to be.

Some members of the Medical Council appear too much to forget the essentially free and responsible judgment which is required

of every medical man, in the case of every life under his care; and they want to prescribe rigid rules for every hour of every day of your student life, and would grow you to the shape they like, as a gardener grows a plum-tree. As though they were vain enough to think that what they can give you is enough to fit you to cope with the amazing difficulties of your calling! What substitute can they give you for self-help, for which they would allow you no time? Let them see that nothing in their *curriculum* can take the place of self-respect, of self-command, of self-development. They are forcing men to learn, as if it is only our seniors that can infuse learning into us. But if we are not to lovingly cultivate it in ourselves as a generous natural growth, then there is no future for human knowledge. They must trust the rising generation, and hope that wisdom will not die with them. Their proper and efficient guarantee is in the examination. What we want are examiners who know ignorance and foolishness when they meet it, and have resolution and public spirit to promptly and sternly prevent it entering the profession. If we have such examiners, why need we trammel every hour of a student's day? If we have not, then let the Medical Council turn their energies to educating examiners, and supply them to us.

I say, that in point of discipline you will find excess rather than deficiency. You will be very carefully trained; you will not

be formed in one operation either, but come out in stages in a sort of geological method. If you are elaborated by the London University, you will have to show a sort of unstratified primary basis of classics and other schoolboy learning before she will take you in hand; then, at preliminary scientific, you will complete a sort of stratified primary of chemistry, botany, and zoology; then, at first M.B., show that you have received a secondary series of anatomy, materia medica, &c.; then, at second M.B., exhibit a sort of lower tertiary eocene of medicine and surgery as yet undifferentiated; and finally, at upper tertiary M.D., you produce your beautiful fertile, and various completed sphere, and you may bring your delighted friends to sing for joy over it.

This is all like enough to Nature. Oken says, 'Man is a planet upon the planet,' and it seems right enough, if so, that he should come out in a properly geological method; but mind you gravitate to your own centre. Yet it certainly seems a pity that the learning should not all exist together, but that one layer must cover another like so many coats of paint. As it is, I fear that any complete medical sphere among us must allow that he only can show bits of these several earlier formations where they are denuded by accident, or upheaved by some casual quasi-convulsive scientific effort. Such a system only shows that a man has, at different times, known a great deal—not that

he ever did know a great deal, much less that he knows it now. We see, and are surprised at, the great bushel of learning that has been ladled up; but it was done at so many lifts, that the measure may be only a half-pint after all.

All the Faculties follow the same sort of stages more or less now-a-days. You will needs be made up piecemeal, whether you like it or no. You will be put together, like a plaster image of a not over-definite figure —first legs, then body, then head—and by the time the head comes, the chances are the body and legs will be crumbling away.

Now, all this meanwhile—mind you don't lose the independence of your judgment. The Medical Council (like Frankenstein, in the story) will mould you, as best they can, into an image of such a man as they want; but you will supply the soul to it. And perhaps you may, like Frankenstein's image, teach them to be less ambitious in their creations.

Take care of your freedom, and, with all your getting, get understanding. Understanding is the organisation, the digestion, of your knowledge, the mastery of it, so that you are in possession of its central and cardinal points, its seats of government and control.

What we want you to do is, to inquire into, and grasp intelligently, the principles of every science you study; you will not keep all the details, but when the details

fall like leaves, then the principles shall remain, as the stem, and boughs, and branches, to give form, and strength, and permanency to your tree of knowledge. Let over the door of memory be written, Nothing unmethodised enters here. Don't cram with ill-arranged knowledge. Don't cram for your examinations. The examination is not your real trial; you only find *bail* there to appear again before a higher court, where your worth and usefulness will be vindicated or condemned without appeal. DON'T CRAM!

It is pitiful to see those poor creatures who, without putting out vital power of mind, suck, and imbibe, and swell out into shapeless lumps of unorganised learning which dies down and decomposes in them, till they go about putrescent heaps of decaying knowledge, on which theories, and -opathies, and other low growths sprout and flourish like funguses on a dunghill. Don't cram. Don't fear your examinations. A wise examiner does not 'pluck' for what you don't know, but for mistakes which show confusion and error in principle. Don't suppose you can 'get up' in the last few months of your study such a knowledge of principles as will save you from confusion and error. You can't. Consider the limits of your acquiring intellect. Your intellect cannot take photographs; it is just one single individual indivisible point, that, like your discerning vision, can only attend to one thing at one time.

Your intellect, like a single pencil-point, will go, throughout each day, over the page of memory; and it will write deeply and durably, as attention keeps it down firmly. Please let it now write down this indelibly:—*Bad Memory is another name for Inattention!*

Now, see that, with this one small single point, you have slowly and perseveringly, and with much reiteration, to trace out a vast chart of all the dangerous places that the sick pass into; and by this chart you must pilot your patient, and no one can get at that chart to improve it but yourself only.

And when I think what vile, futile daubs and scratches, untrue to the real dangers, some fellows make, one would almost wish they could sink with those whom they mislead into the quicksands—pilots who drop the anchor when all is safe, and rush on among the reefs.

I wish I had time to go over the several branches of your study, and consider the special service of each. But this is scarcely the occasion for such detail. Every teacher will impress his own 'science.' To-day our common care is, that we enter on our labours with a spirit equal to the achievement we forecast; we look at the end, and gather up our strength.

Yet I will go out of my course to recommend you a special study of anatomy. Not because you will have to cut off legs. You

don't think of anatomy when you are doing that; you cut, and saw, and tie what bleeds. But because the knowledge of anatomy is the type of the knowledge of disease, and practises your minds in retaining complicated matters of fact which have no causal connection. So, set yourselves to get a good practical knowledge of anatomy; for the process you will get it by is a very difficult process, and wants immense practice; and it is the only process by which you can learn disease. That process is, direct original observation. It is as easy, and as dangerous, to do this badly as it is difficult and triumphantly efficacious to do it well. Learn, in the study of anatomy, to use your senses for yourselves, and not to rely on books or lectures. If you look at this bone, you get an image, a sort of shadow of it in your minds, that you can remember and recall. That image is all the teacher has got himself; and when he goes to give you over his image, or shadow, he can't send it out bodily like this bone does, to your eye: he has to try and carry over to you a sort of shade of his shadow by a piecemeal of words, every one of which is either too large or too small for what he wants it to carry. Don't take piecemeal the shades of another man's shadows. Go to Nature direct.

The lecture and the book do this for you; they give you names to communicate what your eyes see. They teach you the meaning of the name: your eye must teach you the

nature of the thing. They cannot replace your direct observation.

The best lecturers are those who draw good outlines in chalk; but the outline on the bone itself is better. See it. See it well. But, to equal the lecturer, you must see it, not as an ox sees fodder, but analytically. Note its parts, and complete the register of its form in all details in your memory. Then you shall be independent of Ellis and Holden, and you shall examine your examiners!

And what is more by far—you shall be ready to learn with equal directness the facts of disease. You shall be free-born in the noblest of all vocations. You will have always near you a self to trust when there is no one else within reach. By direct skilful observation you will acquire a most valuable knowledge of disease; and you will see for yourself what can be done, and what can NOT be done, for their relief. But if, instead, you take to Medical Literature, *nihil sanantibus litteris*, you will find it voluminous enough. Medical Literature is immense in quantity, but in it is much chaff and little wheat. When what is known is little and unsatisfactory, and what is NOT known is much and promising, then the tendency is almost inevitable to turn from the little that is known and make guesses about the greater unknown. And the guess is one's own, while the facts are anybody's; so the guess is fostered with a parent's love, and

decked out with all a parent's fondness, and smiled over by polite friends; and presumptuous facts, that don't give way before it, are snubbed; until at length, alas! its lightness of character brings it to appear where it disgraces its parentage; and, though the offspring of an F.R.C.P., it is found plying a shameless trade among the nauseous advertisements in the public daily press.

Knowledge of facts got by reading is practically worth nothing. See the real use of reading. The only use of books is to instruct you in the meaning of a name. Your own eyes, and ears, and touch must teach you the nature of the thing. Medical Literature, when it goes beyond what you can see for yourself, is full of vain strife and contradiction. I am ashamed to think what amazing contrarieties of views and statements will be set before you when you study Medicine and Surgery. And I want to show you how you are to test these opposite teachings. This is the only way:—By getting such a practical knowledge of what they are all about, that you know what the writer can know, and what he cannot know. If you thus know the things he speaks of, you can be guided by this sure rule, which please write down:—

Never trust a man for what he cannot know.

If we followed this simple rule, 'Never trust a man for what he cannot know,' then there would be an end of quackeries, and

theories, and -opathies. But the mass of our profession are so unnecessarily second-hand in their knowledge that they don't know what can be known and what can NOT be known. We all have to face much confusion; and few people are able to face necessary confusion, and act quietly up to what sure light they have. They cannot overcome the human tendency to meddle with what they don't understand. And then confusion can be offered, by clever people, in a sort of clarified form, which is liked better; and if the mass of confusion is great, nearly every one is satisfied if it is made transparent at the edges. They are too idle, or, as they call it 'too much occupied' (which is always the same thing), to go into the middle and examine it. They prefer to be guided by faith, and not by reason. Gentlemen, your faith may lead you, but your reason must guide you. *Your reason should be behind, but above your faith* —for our oracles are uninspired; while there is truth in Nature to be found of all who seek her direct.

'But,' you say, 'what of our progress?' True! Gentlemen, the medical profession has made a deal of what is called "Progress." Beware that word. There is no such thing as Progress, except for conveyance from place to place. All improvement is development. Progress is a leaving of what is behind, and a pressing forward to some mark. But we must not leave what is behind; and we have

no mark to press to. If you turn to those few great medical discoveries which we daily find true to Nature—Vaccination, Bright's disease, Addison's disease—you will see that they were not made as 'Progress,' but rather as backward steps to old, simple, natural truth, which had been neglected or forsaken because such sober truth did not suit the big hopes and wishes of some chimerical aim.

All along, it is this finality, this pursuit of chimerical aims, that has stayed our development. It is because Physicians have looked rather to great, vain aims than to the facts of Nature, that we have so few general truths, and that we neglect so much those we have. It is because, when the facts do not directly promise the fulfilment of the aim, we look more to the aim and less to the facts, that our medical press contains so few accurate and simple observations, and contains instead so many futile guesses at the nature and treatment of some undefined disease, or 'Theories,' as they are called. They are only guesses in live English. Don't waste your time on these theories.

Medical theories are short-lived creatures, made out of a little dust of facts, in themselves lifeless, which some one fashions into a shape, and breathes into it a little puff of himself—a breath of life that's not divine; so that they soon fall to pieces again, when they have served their maker's purpose. And the relics of these wretched broken-down

theories are blown about the ever-shifting desert dust of Medical Literature; or else they stick about the little bits of real truth, in the shape of obsolete names and false descriptions—hiding the truth, as when those old accumulated shells of other years stick together round a very old oyster, making it such a task to reach the oyster himself, however ardently you desire to eat him.

The people who make these theories are straining after impossible aims, and not making sure their steps to what is really obtainable.

They look soberly only on conclusions, and —if I may so speak—are drunk on the premisses. They draw conclusions, when they should know that conclusions which have to be fetched are not worth the having. In their haste to anticipate the natural development of inquiry, they are like children who poke open buds in a hurry to have flowers.

But do you, gentlemen, habituate yourselves to suppress guessing. Let your language in diagnosis express only the ascertained truth of your knowledge of the case. Be ashamed of a guess. A guess is the cry or squeak of an overstrained reason. It is as difficult to keep from guessing when you are in doubt as from crying when you are in pain. Doubt is the agony of reason. You must learn to bear it, and to act calmly under it. If your courage gives way, and you squeak out a guess, it will no more help your reason than cries lessen pain; but,

like the cries, it will occupy you uselessly, when you might be helping yourself really.

Don't make guesses falsely respectable by calling them 'Theories.' Call them 'Guesses;' it is better English. Let us say, 'Dr. So-and-so's Guess about So-and-so.' Keep away from these guesses and discussions of guesses. If you for yourself first learn to be scientific, and then observe the nature of diseases patiently and well, you will see what can be known, and what cannot be known; and you will be kept from the greatest danger of generous minds, which is this:—that in striving to know what cannot be known, they leave unknown what they might know. Watch patiently the practice in the wards, surgical and medical, that you may learn the course of diseases, and see what can and what cannot be done for their relief, and get experience in doing what can be done.

Don't be dazzled by brilliant aims. Keep your minds fixed on to-day's duty, for our life is not lived to an aim. *Sine missione nascimur*, we live to a duty. Don't let us think and act as if we were here to sweep disease and death off the face of the earth, or to give life for half a crown a bottle. This is rather our humbler, yet our truly nobler, service—it is, to be to each individual sufferer under our care all that a man can be to his fellow-man in sickness.

Publicly in our writings, and privately in our thoughts and acts, let us keep to the

duty of truthful observation; training our reason until it becomes an instinct with us to see what is actually correct, as other men's consciences are trained to feel what is morally wrong, until we acquire a *sensitive reason-conscience*. Let us do away with those volatile aims at cure; they are our greatest enemies; they ruin our social reputation. For why is it that we are only honoured in the sick-room, or, as the old saw has it—

> 'God and the Doctor they alike adore,
> Just in the hour of danger, and no more;
> The danger o'er, both are alike requited;
> God is forgotten, and the doctor slighted.'

There is much plain truth in both sides of that old comparison. I am not one of those who so easily put themselves in the place of the Divine being, and speak for Him. But on our own side, let us see if it is at all our own fault. Is it not, in great part, because we keep before people the aim of cure when we deal with the sick? Do we not allow them and their friends to assume that we heal, and so get credit that does not belong to us, so long as their minds are shaken by disease or anxiety? But the public is not always sick, and when it comes to itself, it has its own opinion about the cause of recovery, and despises those who for profit, or through preoccupied foolishness, favoured the thought that the work of Nature was their own work. Just as, when the daylight gave them courage, the enlightened public

drowned those very witches whom they shuddered in awe of in the dusk. You need not fear being forsaken. 'Tis not hope that sweetly leads a man to his doctor; 'tis dread that drives him to you. There is so much contentment in human nature, that it is governed more by fear of change than by expectation of advantage. The ancients went to their oracles, though the oracles did not help, but only directed them, and that often ambiguously. And people frequent lawyers, although no lawyer can make your claim to another person's property any stronger than it is. But do you watch your cases carefully. Guide according to convictions whose grounds you yourself know. Be very kind to your patients, and don't hurt them, and give Nature her full credit.

But that you may be able to do this—for a long life of duty will leave you very imperfect in it—pray be now convinced that you must begin a course of self-reliance from the first, identifying your intelligence with the principles of the knowledge you gain. And begin this course at once, for you live at a very critical time in the history of our profession. The medical world is full of the professors of fragments of knowledge, who don't understand each other. We live at a crisis when the art is so long, that it is dividing up spontaneously, like some worms and other low beings do when mass exceeds organisation.

Get an independent, well-grounded familiarity with diseases for yourself, or you will never escape from the crowd of experts that will thrust their help upon you, to aid you with all sorts of -graphs, and -scopes, and -ometers. They will importune you—these multitudes of guides—to start on the old labyrinth from their new start-point, and to follow their thread, which will put you at their mercy; but do you start from some ground you know yourself, and take your own thread. Use the new-fashioned instruments rather to guide and educate your old and trusty five senses than to replace them. Your senses you have always with you. No one can carry all the modern medical machinery. Let the thermometer teach the hand, the microscope quicken the naked eye, until the instruments can be put aside, as Reason puts aside logical forms. Do you remember the oldest whisper out of ages that comes from the great Father of Medicine, 'Life is short.' With good reason he throws across to you first that curt sentence of a truth that is 'ever unperceived, never understood.' There is no time to waste; the art has grown longer since he said it was long, but life is as short as ever. And not merely has the art grown long; it has outgrown the reach of common industry, and hence a crisis. Gentlemen, I say that when the mass of knowledge in any craft or profession grows larger than the capacity of its individual followers, then there is a crisis, and only one thing can save

it from revolution and overthrow; and this thing is, that sound general laws must be discovered, which, at the time when the craft so extends beyond the capacity of its individual members, shall give power to them to know in principle what they cannot follow in detail, that in these principles they may have established common ground, where they may meet and understand each other, and control each other for the common good. And the subdivision of the craft must be in accordance with such principles. But when, as now, one doctor says, or allows it to be said for him, 'I am for the nervous system,' and another, 'I for the chest,' and another, 'I for the liver and digestive organs,' what principle is there in that division? And when another pair of doctors say, 'We are for this common disease, "as exemplified in private practice,"' what principle is there in that division?

Gentlemen, let us see how grave a thing it is that our profession is divided; and let us see to the principles of division, if it must divide; or, if there are no principles, then let us prevent men from cutting it up; and then, like X, Y, Z, and Ampussy And, all running off with a piece in their hand, and the richest and most 'private practice' piece they can get hold of.

Let us remember the Tower of Babel, and keep down ambitious and futile and empty aims, and look to our agreement in a possible work, lest we cease to understand each

other, and break up in confusion. Already the nerve-doctors, and others of these cross-divided patches of physic, puff complicated remedies, whose efficacy no one can possibly know. Let us keep together, and keep to strict observation and proof, or we shall go back to Mediævalism, to a sort of Medical-Ritualism, to a Medication by Faith.

None can help us but our own individual resolutions, blended into a strong mutual will. Let us take only what we can grasp, and take it firmly from the facts of Nature, for we each must be ready to face the duty of dealing with any disease at any moment. Learn well the action of as many remedies as you know to be truly useful. You go forth to do battle as with all sorts of terrible wild nations and beasts of diseases, whose weapons and mode of fighting you indifferently know. And your Alma Mater will offer you an old Tower of London sort of armoury, nearly all odd things, grotesquely out of date, in what is called a 'Pharmacopœia' of more things than any man can know the use of. But do you choose such weapons as you can handle, even if they be but as five smooth stones from the brook, if those are all you can handle well. He is not the best soldier who carries the largest collection of warlike implements, but he that wields his weapon best.

We shall try to make you a *vir doctissimus, et ornatissimus et clarissimus;* but pray, while you are getting all the newest

fashionable learning of our time, remember that the newest patent clarified stearic candles may give no better light than a well-managed common dip. And you are called to the bedside, not to be admired, but to help. You live to do a duty of patient investigation and guidance. Not that we should neglect to cultivate ourselves; for though, as men occupied in the same direct duty, we shall be like instruments playing the same tune, yet remember the same tune sounds very different on different instruments. And while we keep ourselves sternly to observe and know the facts of disease more and more, we must not neglect to avail ourselves of every means of self-development and of accomplishment; for a chief pride of our noble calling is, that in it there is direct use for every grace of mind and of body. We have to be, as it were, resting harbours, where the broken minds of the sick may refit with every mental strength; and we must be ready to give aid to each shaken faculty; we must be ready to create faith—that greatest of tonics—for the unbelieving, and hope—that best of stimulants—for the despairing; we must find fresh interest for the weary of life, and not merely know a few things which others are ignorant of.

Now, if you will bear this simple view of duty in mind, it will greatly aid you to success in life, which we all wish you. We have often seen the ill effect produced by the bumptious conduct of a medical man, who

was up in the air, above his first simple duty of carefully ascertaining the actual state of his patient, behaving as if all his duty was to send the curative potion he had learnt, directly or indirectly, from some "Theorist," as if he knew the case without examining, when he really did not, and when sensible patients know well that he does not, and cannot, know.

I am sure the most experienced of us will support me when I say that the more you carry out your real and natural duty of observer and guide, and the more you keep away from aims at cure, the more you will be liked by the better class of patients, because you will conform better to their instinctive knowledge of human reason, the kind of thing it is, and its limits of action; and the more you put forward pretensions of cure, the more you are likely to suit only very low, and servile, and ill-educated, and, therefore, probably poor people.

If you learn your profession well and soundly, and practise it honestly and frankly, giving Nature her due credit, you are sure to get a good living. We cannot promise you a great success in life; but we can promise you more—to deserve it. We must all be ready to see others get on better than ourselves without envy. Money price is paid for social value; and the social value of a doctor is not only his knowledge and skill in his art proper, but it is also his adaptability

to the complex and varying nature of the people he comes in contact with. Some of us are not such pleasing people as others, and such of us are apt to complain that practice is not distributed according to merit, all the while, of course, thinking of ourselves; which is very foolish, if only because such thoughts sadden and sour us, and so make us less nice than we were before. But if we see, first, the simple truth that money price is paid for social value, which much depends on points of nature and points of fortune that are all out of our control; and, next, this other simple truth, that there is also individual merit, of a private sort, that we all may possess, though we won't be paid for it in cash, and which nothing can deprive us of—*Quod non dedit fortuna, non eripit*—we shall gain this advantage, that we shall be able to congratulate others on their greater success, and yet not feel ourselves degraded.

The man who takes 12,000 guineas a year, and despises them all, living only to duty, is not disloyal to the nobility of his profession, as the man is who grumbles over his 500, and forgets that he all the while is doing what is above money and without price—murmuring that the labourer is worthy to get his hire, and forgetting that the hire is not worthy to occupy the labourer.

For a doctor no more lives to get money than a Lord Chancellor for his £5000 a year,

or than a gentleman lives to wear fine clothes. In each case these are casually prominent incidents.

The only worthy obstacles to self-abnegation are the wife and family; but even then, if by any reflections you can reach contentment, you shall not get less, but by thinking less of self you shall become more pleasing, and so get more.

We don't want you to be over-philosophic. 'Tis true, philosophy is the ripeness of human intellect; but then remember ripeness is only the stage before rottenness, and that the world will always be governed by the youngest, juiciest, and most active minds that are in it. Hers, too, is a kingdom that is taken by force. When young men under thirty take to philosophic and pensive reflections, instead of striving with might and main to get all the honour and wealth they can fairly achieve, then they are like those apples that you see turn red on the trees before ripening time; and you need not look closer at those apples: you know there is a maggot in them.

If you are in for the London University or for the Hospital prizes, don't let another man pass you without pulling your best. Sometimes you hear life compared to a downstream into an ocean. It is a good old simile, but, like many others, it is better the other way about. We come out of Eternity, and pull up the stream; and now-a-days, while we are young, we have lots of

water and elbow-room; though sad are the risks that sometimes sink the best, and bravest, and noblest of us, in spite of personal strength and every lovable quality.* But as we move along, the banks are coming nearer, and so is the bottom, till after a few sharp rubs we get aground. Such is the natural course of your life. For if, as I have shown you, Learning is rather a development than a progress, Life is rather a progress than a development. By the law of Nature—inexorably—you must leave the years as they go, and be limited to those that are to come. But if you are loyal to your noble profession, and follow in all your doings heroic truth and duty, then, as what is to come grows narrower, what is present shall grow wider about you; and instead of a future, you shall live a larger life, until present and future blend, and are one and the same.

* George Rootes, the son of Dr. Symonds Rootes, of Ross, Hereford, was appointed house surgeon to the Hospital on the 1st of September 1868. In about a week he took diphtheria, apparently from a patient whom he attended in the surgery, and after an illness, which he bore patiently and bravely, died on Sunday, September 26th. The words in the text but feebly describe his character and person; for he was so handsome and generous, and so remarkably gifted with readiness of speech and with kindness of heart, that his death cast a painful gloom over the whole school and Hospital, in which he was much beloved.

APPENDIX.

As, in answer to a general desire on the part of those who heard this lecture to have an opportunity of perusing it at leisure, the lecturer is constrained to print it, he must beg permission to guard it by one or two remarks.

An impression was left by it, on some minds, that the lecturer had inferred that there is little to be done for the sick, and that the attainable knowledge of diseases is, at best, loose and unsatisfactory. He is sure that the reading of it over will remove that impression. What he wished to urge was this: First, that any knowledge of diseases which is communicable from one to another is vague and remote, and not directly applicable in our everyday duty, and that its best use is merely to give names by which we can remember, and indicate to others, what we ourselves see; and, second, that any one can for himself get a most valuable knowledge of and power over diseases by directly, and closely, and carefully watching the conditions and courses of those cases of disease that come under his own observation.

He wished to urge to the attainment of such a practical knowledge of, or rather familiarity with, diseases, regarding it as of the utmost value, of incalculable value; without it there could not be that security for individual life which is the foundation of society. If he said comparatively little in commendation of the

aids that will be given to the student in every branch of study, this was from confidence that the help given by each of his able colleagues will fully commend itself in good time. What was spoken against the study of medicine through the medium of books is over-general, and has a more sweeping effect than it would have had if time had permitted the lecturer to draw a just distinction between those several excellent works, on the one hand, in which the facts of disease are clearly and fairly stated as far as possible, and the conclusions and suggestions that naturally rise from those facts are put and considered in a judicial and impartial spirit; and, on the other hand, those works which periodically make their appearance, in which some theory or another is thrust into prominence, and obstinately held there in curious and, to him, inexplicable disregard of its triviality, and the utter absence of any support that can be compared with the confidence and vigour with which it is put forth again and again.

Lastly, the limits of time, likewise, prevented the lecturer from describing at greater length that power over diseases which is sure to be attained by any one who perseveres rightly in the search of it, and is determined, on the one hand, to let nothing through his negligence escape his notice, and, on the other hand, to cautiously yet boldly allow himself, in due time, to be certain as to the courses of the diseases he watches, and as to the degree in which his measures have modified those courses.

No one can watch the practice in great hospitals, in a liberal and candid spirit, without

perceiving that the public view of the usefulness of the medical and surgical art is more than justified by the results obtained in its practice. We do not do impossibilities, and failure is too apt to produce an over-depressing effect on the minds of those who come into our profession with as over-sanguine a view of their future usefulness. That depressing impression is, however, removed gradually when we come to perceive, first, how absolute and how intimate is the necessity which compels the sick and their friends to seek whatever aid they can obtain at the hands of their fellow-men; and, secondly, of what real and direct value are the guidance and management, and certainly also the remedial agents, which a competent medical man—a true physician, an observer of nature—is able to bring to bear. In the long run he comes to feel, and I believe justly, that society is his debtor, but if he follows his calling in a worthy spirit, he can turn from the comparatively poor social rewards that he gets for his labour to the sense of a high duty discharged with the best of his ability, which is a reward that, though it goes for little in print or speech, not being able to be uttered, except when counterfeit, yet no one who is not a pitiful inhuman wretch can at heart despise it.

ART AND SCIENCE IN MEDICINE.*

GENTLEMEN,—A suitable introduction seems so important, that it is almost dangerous to give one's mind to it, for fear the thing to be introduced should prove not equal to the preceding flourish. Knowing this, I have looked around me at the beginnings of things, to try to get a general notion of the process of introduction; to follow, if possible, its proper rules on this occasion. But I soon found that, if I gave myself to this inquiry, I might never get to the materia medica at all; things begin so vastly differently, according to their nature and circumstances. Still, before giving up, I came to apprehend, in a vague sort of way, a track of broad distinction running between the two great groups of things—the productions of Art and the productions of Nature. One could not help observing that artistic products come in with much prelude; so that, for instance, in an oratorio or opera the composer leads into his overture the choicest staves of his best movements, to sharpen

* Introductory lecture to Course on Materia Medica and Therapeutics, delivered at Guy's Hospital, May 5th, 1874.

expectation of its various excellences, and he enlivens these pet staves in his most enticing manner. But it struck me that it is quite otherwise in the works of Nature: her developments appear so unobtrusively, that the promise is never greater than the performance; for instance, when she is introducing her materia medica, how dry are the bracts in which she enwraps the rhubarb that is about to be! Such a dry beginning I would especially desire to make, knowing as I do that many students of taste would prefer swallowing materia medica to hearing about it, and chilled as I thus am by my sense of the unpopularity of my subject.

The subject of materia medica comprises pharmacognosy, pharmacy, and pharmacodynamics, or therapeutics. I well remember the sigh with which I learnt that bewildering truth, and the rebellion I felt rise within when I found that "pharmacognosy" (derived from *φάρμακον*, a medicine, and *γιγνώσκω*, I know) treats of the origin, properties, varieties, quality, and purity of unprepared medicines or simples. This, I said, must be very important, if you want to trade in drugs—to be a drysalter or colonial broker, for instance. Then, pharmacy (from *φάρμακον*, a medicine) treats of the collection, preparation, and preservation of medicines. This, surely, it seemed to me, must be very much to the point between wholesale and retail chemists—who ought not to cheat each other—and the

public; and if they cannot be trusted, then the Home Office should look to their behaviour: put a tax on and keep analysts, as they do with tobacco and beer.

Then, pharmacodynamics, or therapeutics (from φάρμακον, a medicine, and δύναμις, power; and from θεραπεύω, I cure), treats of the effects, uses, and administration of medicines in the cure of diseases. Reading this, I was soothed; and it seemed to me that this is so valuable a branch of knowledge, that I could even wade through the pharmacognosy and the pharmacy to get at the pharmacodynamics, or therapeutics. For at that time it was my first year: I was like other first-year's men, rather fresh from the nursery, and my notions were much what I had been brought up in at home. How should it be otherwise with a first-year's man? His medical experience is of the measles and cutting his teeth; and he remembers, doubtless, that then mamma or nurse would say, "Here comes Mr. Johnson, dear, to make you well;" so he thinks doctors send things to make you well, and hence the powers of remedies appear to his young mind as the chief object of a doctor's study: indeed, I remember a glow of satisfaction at the size of my Pereira—three big volumes. This appeared to me to foreshow the greatness of the armoury I must learn to wield. True, I saw that the pathology was a big one too, and contained a terrible list of obscure and insidious diseases; but my ardour fancied it might be

that diseases had grown so numerous and so sly in their onset by reason of the many and great remedies that had been brought by the doctors to bear on them, leaving them no chance but to come like thieves. That view has undergone large modification in the years, full of experience, which have separated me from the innocence of first-year's manhood, and made it competent for me to address you as one of the aged and much knowing. But I have so much love for that old childish notion, that I will not slight it; for one thing I believe sincerely, that the phases of faith in remedies should be developmentally successive, without abrupt breaks, that you may continuously grow into that masterly doctor I wish you to become. If there be any sense in which the child is father of the man, it is surely to infer that the man should hold in filial respect all that was good in his earlier stages. When the elder regard the value of their former lives, they are safe guides; but when they conceive that their own lives were wasted by comparison with some new thing that they used scarcely more than half to appreciate, then they are the most insecure of guides, for with the inflexibility of age they unite the unappeased desire for something new, which makes youth unstable. Let us mark this truth, for the old fault of medicine is, that its age is not honoured within itself; hence it cannot form heart-wood, and rots periodically, like an annual plant. Physicians and surgeons,

themselves somewhat in years, and too conscious that they often failed, hear of the wonders of the recent school of -scopes, and -graphs, and -ometers, and, not sufficiently honouring their own sound clinical knowledge, they lend the weight of their position and character to force laws upon students, compelling them to pass hours and days in poring over microscopic details which are, to all intents and purposes, just as useful as the science of butterflies or of quantics for practically benefiting the sick. Meantime those students learn next to nothing of clinical medicine, and so, for want of valuing its older acquirements, medicine behaves like the little ones who let go one handful to grasp another, as if in second childhood.

To maintain a reverential and respectful bearing towards what is good in preceding stages is essential to sound progress: I say to maintain, not always to use, reverence, for we have to be practical actors in a world which subsists by changes, as well as correct in those feelings which give character to our own part in those changes. Not only must individual persons be thus reverential, but likewise trades, crafts, and professions must deal in a similar spirit with the earlier history of their own development. In thinking, as therapeutists, of the history of therapeutics, we must (1) deal fairly with our predecessors, and (2) not think too much of ourselves. Some day, you know, we shall be historic ourselves; that is, the louder

ones amongst us—a chastening thought, when you reflect what sort make the most noise. It would puzzle Max Müller to say into what form of solar myth Holloway's pills and lunatic asylum will enter. In those far future times our very best may seem strange. Cannot you fancy the lecturer in 2874, of the threatening era of what I may call Panteutonic Buddhism, beginning somehow thus:—"The earliest age is known as the Scopes-age, from the name of the many kinds of instruments worn by physicians. Thus they had on their eyes things called microscopes, the nature of which is now unknown, as the records of the period were printed on bad paper, and were worse bound; but they could make the smallest trifles come to sight. To spy through these at the excretions was supposed by the ignorant patients to have a magical healing virtue. These instruments were said to magnify, a word meaning to make great; but it was afterwards found out that the things put under were really made no greater than they were before. How this strange error prevailed we cannot now understand, but it has been suggested that the constant wearing of microscopes prevented the physicians from being able to see the real relative size and importance of things. At the same early period doctors were not considered full-dressed unless they wore on their ears pipes of wood of ornamental design, called stethoscopes; and it is said they would crowd in

dozens to hear an unusual squeak or whiz, which had in itself no real relation to the patients' suffering and danger; but the poor patients thought all the while that they received great benefit from this. Besides these, there were many other -scopes; but for mention of them I must refer you to the historical lectures, in which you will find it shown clearly that these delusions were but part of the universal trust in machinery which led to the downfall and decay of the primitive and almost unknown form of civilisation, to which I must apologise for so long directing your attention." Of course all this will do scant justice to Laennec or Dr. Beale; but the abuses of our time will appear in shapes we little expect when our successors have the sun with them and we are in the shade, viewed by the best antiquarian perspicacity of the time; and when they cannot clearly see us, withal the sun is there to help them, they will say we are in the dark ages, where the forms are a few outlines and the colours purple. But let us turn to past history.

Therapeutics is the oldest of the branches of medicine, and it is perhaps also the least respected; at any rate, I find that Garrod says it is the most backward department of a possibly scientific pursuit, which medicine is always becoming. But it, nevertheless, is clearly traceable in history that pathology and the other properly scientific parts of medicine arose as the servants of

therapeutics. There were two stages of pathological inquiry. In the first, the immediate aim of the study of disease was the cure of the pathological state; the pathology was commonly invented to suit the therapeutics. In the second stage, which is of very recent origin, the object is so different that the science deserves to be called by a new name; for it is all the way off that other old pathology that astronomy is off astrology, so that you might call it pathonomy if you liked. This is the study of diseases directed towards the knowledge of the pathonomical state as a pure matter of knowledge. It is a noble study. It is good for society rather than for individuals. It lights up the darkness where -opathies fungate. It is communicable, and will endure the full light of inquiry; it grows in society—in the Pathological Society, for instance. I say, it is the noblest branch of medical science. It is noble enough not to fear the truth. And this is the truth, that it is not of much good for healing the sick; I mean, for the individual doctor healing the individual patient, for the direct service of the one in serving the other. It may be of service, but that is not its direct aim. Something like those maggot-feeding birds that may do good to our crops while only thinking of filling their own. Suppose old Hippocrates woke up and went to the Pathological Society. I can think what he might say with some force. He might say, "All this is very interesting;

it goes beyond my time in its way. I used to think a little in the same direction. But in all this you are but showing the truth of what then kept me from carrying the matter further—that it does not help you with synocha and pneumonia. I advise you to watch what management and medicine are good, as we did in the old Asclepias by the sea."

However ill it may sound, you must bear to be told not to be too scientific. And this is why. Because you will have to deal more with the unknown than with the known. And science is extremely bad at dealing with the unknown. Science teaches you to walk firmly on solid grounds, with contemplative front and eye sublime, &c. But therapeutics requires you to swim or fly, as it were.

It is because you must deal with the unknown that you must not be over-scientific. You must possess a quick invention, like an artist's invention, which shall follow inspirations where science declares the footing uncertain. There is no doubt that Trousseau is quite right when he urges that the ultimate aim of the doctor is to become an artist. Let me quote from his lecture on "What is Clinical Medicine?" He says:—"Every science touches art at some points. The worst man of science is he who is never an artist, and the worst artist is he who is never a man of science. In early times medicine was an art which took its place at the side

of poetry and painting. To-day they make a science of it, placing it beside mathematics, astronomy, and physics." Again: "In medicine, do not confound art and science. All cannot become artists, but persons of the most ordinary intelligence can make acquisitions in science." And again: "But we will never exact more than scientific knowledge, for the rest is a natural gift. Take care not to fancy that you are physicians as soon as you have mastered scientific facts. They only afford to your understandings an opportunity of bringing forth fruit, and of elevating you to the high position of a man of art."

I think nothing can be more vital to our interests than the just apprehension of the great truth thus stated by the great artist Trousseau, from his point of view. I would only diverge from his lead when he goes on to indicate that our aim is to become artists, and that because art is lofty. I have nothing to say against the motto "Excelsior" in its proper poetic sphere; but we must come out of poetry in real life, and we must be artists, as he calls it, not because art is high, but simply to try to cure sick people. Understand, please, that I am not going to doubt that our art is high. How not? Are we not artists in jalap and calomel, skilled, too, to form designs upon our patients in Epsom salts, senna, and rhubarb—a high art, of course!—and ever advancing, freshened by the brilliant productions of that august body,

the General Council of Medical Education and Registration for the United Kingdom? If you doubt it, look at the appendix to their Pharmacopœia, and see there the suppositoria acidi carbolici cum sapone, or that last triumph of the Council, aqua chloroformi, which, as I shall probably not allude to it again, I will discharge my duty upon by describing at once. "Take of chloroform 3i, distilled water twenty-five fluid ounces. Put them into a two-pint stoppered bottle, and shake them together." Who can doubt the art here?—and, this being art, who can doubt that Trousseau is right in speaking of elevating you to the high position of a man of art? But, perhaps, if we were spared a little such art as this, we should more directly feel our way towards that which I cannot help thinking Trousseau fails somewhat to rightly touch when he calls it art: I mean, feel our way towards that mastery of a constructive plan in our management of the sick and his attendants and circumstances which is needed to make us accomplished and efficient medical men. For this you want sympathy with the sufferer, energy of character, and fertility of resource. You may call it art if you like. All great artists have sympathy, energy, and fertility; but you see a deal of art without these, and for instances I need not again go to the Appendix of the British Pharmacopœia. I say, a constructive plan in the management of the sick, a clear perception

of the proper aim, or at least of its direction, and power to bring all the attendant conditions of the patient, as well as his frame, bodily and mental, into movement in the desired direction; doing all that is humanly possible, and meaning earnestly to do a great deal more—for this end, the pathology of the Pathological Society and of the *post mortem* room will afford you very little direct help. I lectured on pathology not long ago, and then it was my duty and pleasure to recommend pathology in my introductory remarks. Among the recommendations I gave it, this was the greatest, if not the sum, of all. Pathology creates the doctor as distinct from the nurse. Now, I shall tell you that therapeutics should make the doctor a greater nurse than the nurses; so that all that is done by the nurses the doctor does by means of them. No doubt without nursing talent you may be a very good pathologist, and no doubt without pathology you may be a very good nurse. I do not bate a jot of the recommendation I gave pathology. I hope my able successor, Dr. Fagge, will urge his recommendation still more forcibly. Pathology gives you a way of knowing what is happening and going to happen in your patient; and the public expect that of you. I shall take leave to pity you much if you do not get a good knowledge of such pathology; otherwise you will be ignorant and unstable; and if you have any conscience,

you will be full of fears that others better informed than yourself would conduct the patient's case better than you are doing. So you will take your unmerited fees in a properly nervous perspiration, suspecting all the while that the patient's aunt is strongly recommending Mr. Johnson. It is for your own good that you learn pathology, so that you may have sound knowledge to rely upon when rivalry outside and weakness within shall shake your nerves. Here is the difference, then: pathology serves to give confidence to yourself; therapeutics serves to cure your patients, and you will find that is what your patients want. They do not care about the interesting *bruit de pot felé* or *de diable*. After a course of pathology and auscultation, so long and close that you have lost your memory of everything else, it gives you quite a turn to find out how little your patient cares about it all. It seems very hard. It took you so long to learn. Perhaps it was almost all you did learn at the Hospital; yet the patient thinks very little of it. You have made a great diagnosis, and, with a flush of interest almost proud, you tell him he has got a tuberculo-pleuro-pneumothorax. Instead of being satisfied like you, he goes on looking big eyes at you, as if he had received nothing at all. Perhaps you explain his case to him, and are then put quite out of countenance at his pathological apathy, and are beginning to think him an ungrateful creature. But

you must remember the pair of you are not on the same footing in the affair. You wanted to know what is the matter to get a sound scientific position about it, and you naturally expect him to go with you into the little business with all that pleasant interest in his diseased changes which science has taught you to take. He, on the other hand, naturally expects you to join at once and warmly in that want of relief which is his one passionate desire. You see, in short, that the trouble is outside of you and inside of him, and that makes a difference which, after a course of scientific pathology, it needs always quite an effort to see; but if you do not see it, it will most likely be sent into you in two or three rough lessons.

The patient is looking for your therapeutics. He wants your medical art, and you will be judged by him according to your works. You have now to think of his occupation, his rest, food, drink, and sleep; his comfort, his ease from pain. Now for the artist who can, with a few bold lines, throw the nursing into fit arrangement, and then touch up the lights with a well-devised mixture. Your science gives you a little dry dark stuff to deepen the shadows: do not put in too much. What you want is energy in cheerful device, and this is helped by a nature bent on doing all, even the very least, that can be done for the patient. And it grows into an experience which the public deeply appreciate and want; and the article

they want cannot be made any other way; too much science goes rather against it; it spoils your liver, and makes you think of yourself instead of your patient. The first quality of the young doctor is the tendency to nurse. Over the clinical room should be inscribed, "Nobody not born a nurse should come in here." For success in the world, I see that a good nurse with little science is better than a great university man who is all nowhere with those little points of posture and diet which make a sick person suffer less. The world chooses the kind-hearted nursing man. They have a shuddering hatred of the mere pathologist, winding, with his questions, about in their bodies like the first of the worms they have always expected to come to. Of course, the medical nurse must be efficient in point of knowledge. What we have to aim to secure is a proper proportion of knowledge, and activity, and sympathy; that is, of matter, force, and agreeable form in the construction of character.

Now, if by therapeutics you mean the composing of potions and pills, why, I think that is rather a poor, mean sort of thing. No doubt the amount of good you do by a potion or pill is often very questionable; so much so, that the science of potions and pills is not a very attractive science. But we must learn to regard the drug-medicine as no more than one branch of therapeutics; sometimes the fruitful, the necessary branch;

often very small in its relative importance in the proper system of managing the patient. Pereira defines therapeutics as "that branch of medicine which has for its object the treatment of diseases." He says: "In the most extended sense of the word, it embraces all the known means of cure," and he adopts that sense. Mind, I am not saying anything against potions and pills; but I should not be doing my duty here as I wish to do it if I began to describe drugs to you without first clearly pointing out that the giving of physic does not constitute therapeutics. You will find that the drugs a good doctor gives are often only, as it were, signs and symbols in the plan he is carrying out for the patient's benefit—symbols vitally important in the practical world. Without the doses three times a day the service would not go on. They unite the attention and work of doctor, patient, nurse, and friends in a periodic series of efforts, something not unlike those little yells a group of sailors make in time when they are hauling hard on a cable, without which it appears the cable would never come along, though there is no apparent force in the noises they make. Only here the patient has the dosing to himself; but then it is for his benefit; that potion every three or four hours is like a set of stepping-stones for his faith in the weary time. I am now speaking of the lowest degree of usefulness which potions possess;

but they always can further play mighty sparkling little tricks with the heart, or brain, or stomach, so as to allow the doctor to share with nurse and patient a sense of the good that is being done by them all in their periodical concert. To obtain a correct view of the service rendered by drugs in the general effort that surrounds a sick person is an essential step towards becoming a good useful medical man. They are quite indispensable. A doctor without physic is like a priest without a creed or a poet without rhyme. It is only the other day that the *Times* said:—"If there be anything which nature abhors, it is a doctor without medicine or advice." Medicine first, you see. I say, the mixture and pill are often symbolic in reality, so that there is danger of your settling your faith upon such symbols to the neglect of essential means of aid. When asked to see some person who is drinking a great deal too much wine and brandy, or who eats too much, or spends too much time in study, or has engaged in more speculation than is good for his pocket and brains, what a figure you cut if all you prescribe is some drug three times a day! The true art in such a case consists in arranging the plan, including the medicine, so as to make the drinker drink less, the glutton eat less, the overworker work less. The profession of medicine will give you a great power in doing this; and although no one can tell how much the drugs may do in their

mysterious line, any one can see the good effect of good advice with the aid of drugs. It is an ultimate fact in human nature, that if you do not give drugs, you will not be trusted to give the other advice. Do not make any mistake about this. If you try to get on without giving physic, you will be like those misguided thinkers on religious matters who hope to spread religion without a creed. It is very sublime, and suits your inside nature so well, that you try it on your friends. But it does not suit them. The reason need not escape you, if you remember that inside, where the ideas grow, you are yourself; but outside, where you try to implant them, you are another, and not yourself; and that makes, literally, no end of a difference. You will be a wise man when you find out how you never are the same where you are another as where you are yourself. That is to see ourselves as others see us.

You may think there is nothing of modern discovery in all this; and, indeed, the most ancient doctors on record had a very clear notion of the necessity of considering circumspectly and in a comprehensive way the causes and the management of their patients' disorders. So that they are worth more of our attention than they can receive from us in this busy time. This time, that is too busy to learn Greek, and proud of its flourishing present, seems ready to forget that whatever is good in the past is a trust we hold

for the future. It is not only from the ancient physicians themselves that we know they were sensible doctors; indeed, physicians have always had an unfortunate way of leaving the most useful part of their advice out of their writings, and filling these with technicalities and trash more or less obscure. The ancient doctors wrote for people who understood all about the every-day affairs of the period. Unfortunately, they did not undertake to act the part of ancients at all; they thought they were working for a bright future, not a dusky remote past, in which the habits of life and common conversation of the people they lived amongst would be forgotten and become legendary, so that anything could be said and believed about them, and they would hardly get credit for knowing the obvious. Hence you find in the ancient medical writers too much about boluses and potions, perhaps, and too little of that quiet common-sense advice they gave their real patients, which must have been good advice very long ago. The doctors who treated such men as Xenophon and Plato could not have been fools as a class. Of course then, as now, there would be a great many fools among them. But the physician who felt the pulse of Pericles or Socrates could not but be a good man. You need not read Hippocrates' writings to know that he was a man of sound clear sense, for he was the principal physician of an age when the

human intellect flourished as, perhaps, it has never flourished since. But his writings abundantly prove that he was a truly great physician, worthy of the noble age he lived in; entirely free from superstition; hating quackery; liberal in his teaching; so that we find him saying, "Try to do good, or at least no harm;" telling his pupils that life is short, and art long, and experience fallacious; directing their faculties to practical usefulness as skilfully as his contemporary Plato did to subtle and searching examination of the principles of personal and social goodness. It seems marvellous that when he only wanted to infuse his honest simplicity into others, those in after generations should have taken him by force and made him an authority, and tortured his words into nonsense, having no heart for the spirit of them. It is not, however, only in their writings that we can form a knowledge of the physicians of that age; the lay writers of the time show us how much like doctoring London society was doctoring Athenian society. Let me read you such a piece as I will extract from Professor Jowett's charming translation of Plato in the *Republic.* Socrates is speaking thus with Adeimantus:—

"'You would compare them,' I said, 'to those invalids who, having no self-restraint, will not leave off their habits of intemperance.'

"'Exactly.'

"'Yes,' I said; 'and how charming those people are! They are always doctoring, and increasing, and complicating their disorders, fancying they will be cured by some nostrum which somebody advises them to try; never getting better, but rather growing worse.'

"'That is often the case,' he said, 'with invalids such as you describe.'

"'Yes,' I replied; 'they have a charming way of going on; and the charming thing is, that they deem him their worst enemy who tells them the truth, which is simply that unless they give up eating and drinking, and lusting and sleeping, neither drug, nor cautery, nor spell, nor amulet, nor anything, will be of any avail.'

"'Charming!' he replied. 'I see nothing charming in going into a passion with a man who tells you what is good.'

"'These gentlemen,' I said, 'do not seem to be in your good graces.'"

That might have come from a fashionable novel of this day; only it is, perhaps, too like real life, and too sternly meant. Here we have the man doctoring himself, with a fool for patient. The public say a man that doctors himself always has a fool for the patient. And this truth goes further than they think when they seem to infer that if a man be doctoring anybody else he has not a fool for his patient. That assumption is not justified, as Plato's very modern sort of instance proves well enough. It appears

that the patient had got good sound advice, perhaps from Hippocrates, but determines to do as he likes, and goes about choosing whose advice he will to please him, really prescribing his particular doctor to himself, as he before prescribed a particular pill. The same you will find largely done now. Invalids of the kind still keep the fool under their care, applying one and another pleasing doctor among the rest of their means of helping their foolish selves down the easy descent. When society was so like what society is now, the medical care of individuals would involve the same problems as those of our own time. And, indeed, you will find that there is a great deal to be learnt from Hippocrates. Not that I recommend you to spend your time in prolonged study of Hippocrates. It is of no use going back and trying to realise the teachings of the good men of all past time. There were so many, and past time is so long, you must leave off somewhere, especially when you find that the good men of former times thought much the same as yourself, were clear about the same plain truths, and stuck in the same muddles. You then find a repetition of your own notes much the same as when in music you come to an octave; this, you know, satisfies the ear, and anything beyond is the same over again. We have two such octaves in the history of medicine—one in the climax of Roman civilisation, and the other at the climax of

Greek civilisation; the first marked by Galen and Celsus, and the second by Hippocrates and Asclepiades. At each of these times we find a state of medical thought as like that of our own time as the crest of one wave to the crest of another coming on after it. But, just as in the octaves of music you have between the keynotes a lot of half-notes and queer discords, so in the intermediate times between the pure tone of Imperial Rome and the pure tone of this century there were very pitiful miserable howlings; all through those very properly so-called dark ages, wherein human nature crept in a loathsome slough of superstition; it is painful to take up any medical writing of those times; there may be exceptions, but the general result is almost to make you thank God that, as Hippocrates says, time is short, lest otherwise you should have had to wallow through the extended mire of an art which is so long and so dirty. Lest you should think I would impose upon you with fallaciously hard adjectives, I will read you parts of a prescription or two. The blood of a he-goat, taken from him in gelding him, and dried in the sun or an oven. The shavings of a boar's tooth. Horse-dung dissolved in carduus water and strained. White hen-dung given to a drachm of the same. All these, and others too nasty to mention, are from one column of Dr. Salmon's *Synopsis Medicinæ*, date 1681. They are for pleurisy. They are such prescriptions as are

commonly found about that period, and even much later.

One blushes all over to belong to the same craft, and gladly rests one's sight again on the noble forms of the Imperial Roman and the Greek beyond. It is, indeed, incomprehensible to us at first sight how such views could be entertained. In justice, if not charity, to those who enacted such abominations, it would be fair to look at the causes that impelled them. But time presses, and I would not go further on this topic but that we should consider whether such causes are quite inoperative now, and whether we and our successors are safe from their action; for the climax of rational purity in our time will inevitably prove another wave-summit, and the trough time must come again. Let us for a moment put ourselves in the place of a seventeenth-century doctor, and realise the circumstances in which he lived, and especially the knowledge he had to share. Recollect that the leading and active minds of that age believed in witchcraft and fairy influence, not in a vague and dreamy sort of way, as a few weak people hold a similar spiritual view now-a-days, as a pleasant means of encouraging a dull imagination, but they believed that there actually were some sorts of subordinate spiritual agencies who could make tangible things move at their will, and they believed that these spiritual agencies were subject to the influence of spells and charms, so that signs and dodges would bring them into

play. They confidently knew that nasty things, like toad's flesh and crab's eyes, or queer actions, like gibberish and grimaces, would effectually overcome physical obstacles. Now, we know that, within the range of accurate experience, the influences under which physical changes occur are not erratic. In other words, spiritual powers are orderly so far as they touch physical nature, and any impulsiveness or waywardness men imperfectly understanding each other and the whole subject compel each other to acknowledge, belongs to the world of the soul, where the light is not that of the sun, and things with shapes are not subject to gravitation—a world as much within our experience as the other, and by the physician never to be under-estimated, since it is at the points of contact between it and the inert matter within his patients' bodies that his problems are of the greatest importance and interest. His problems perhaps more often concern the immaterial than the material part of the patient, and his tonics are often most efficient there.

But try to realise the time when the best people, confusing the truths of the material and immaterial world, allowed a belief in witchcraft, and think what then would be the mental state of common people. It is worth thinking of; for remember that, if the course of humanity moves in waves like the sea, it is only the higher and greater that feel the lift of the wave and catch the light

it reflects; deeper down is a sluggish mass that is untroubled by the action above. Look about you and try to estimate the way of thinking of the low people of our own time on anything that does not touch their bread and cheese. Nay, do not wonder virtuously; look within and see yourself fairly; for, though in broad daylight, when you are pretty well and happy, strong-headed and stout-hearted, all things seem established like the hills, and orderly like the stars, yet, if you be not very well, or if it be murky twilight and the wind howl, and somebody be recently dead next door, it does not take much to make your flesh creep a bit; so that all things take more their tone from the uncertain clouds, calamitous tides and earthquakes, unaccountable blights and shocking accidents, entirely beyond the regulating power of the most diligent and conscientious Board of Railway Directors. So do not think yourself out of reach of superstition, and especially do not think your patients out of its reach. See how credulous and weak, in time of family sickness, is even that doctor who has carried scepticism beyond due bounds! Of course, he will afterwards say it only shows that he was all afloat at the time. But let this show what you are to expect from those who are similarly at sea, but who have never taken in a ballast of medical earth-knowledge. In viewing the superstitions of past centuries, you must recognise that the world does not essentially

change from age to age. When you trace any feature common to bygone times, you should find out what it is that corresponds to it in your own. Do not be led by the rational atmosphere at this Hospital to think the world is led by reason. Do you think that charms and spells are effaced, and that people do not hold to and long for them? Do not make such a mistake; they have not departed at all, nor been done away; they have only a little changed their shape, and are recognised without much difficulty. You will find the old and natural trust in spells and unknown agencies to be embodied, often very plainly, in the faithfully exact and almost worshipful deglutition of the orthodox dose three times a day. You may know it is only ammonia and gentian. They may half know it. But never think they take it as they would take a "pick me up" of brandy and soda; they swallow it as if to Æsculapius, and in the gulp their eyes sparkle with all the old ineffaceable longing for help from the unknown. The time-honoured potion carries with it the undying power of the medicine-gods and medicine-man, of Fairyland, and of the witches, as real as ever. The conditions of emotional overstrain and tendency to unwonted credulity are naturally present around the sick-bed, and often are the more urgent in proportion as the occupant of it is more beloved. The calamity came from the unknown, and they will have help from the unknown. No education or

civilisation will ever refine or develop them out of that, for education and civilisation carry nature farther, while it remains the same as before. This insatiable demand on unknown forms of help keeps therapeutics unstable. The demand from the unknown is answered, and the -opathies come out of limbo hungry, but smiling and full of promise, and patients encourage and favour their mysterious aid, and are ready to believe that what they have taken produced all the feelings that happened since, and hope made these feelings more pleasant. Thus pretentious quackery thrives parasitically on the sufferer's faith and hope.

I venture to spend your time in this generalising way, instead of endeavouring to attract your attention to the very ingenious and amusing experiments upon the action of drugs on protoplasm, because I know that it is as to the wider scope of thereapeutics that you are in danger of being beaten by unworthy competitors when you go into practice. It is in the greater care they give to the circumstantial and dietetic management of the sick, that homœopaths and other quacks succeed better than some upright practitioners. When people go wrong into homœopathy, and so on, there is always some explanation of it. They mean, in this, as in other things, to be as right as is conveniently possible; and if many of the currently so-called intelligent fall under homœopaths, we should know the

reason of this. A part of it is, doubtless, the longing for mystery of which I have just spoken. So far, they are willing dupes, and you cannot help them, and can scarce pity them, deceived, as they are, for some easy, advantageous, or pleasing process or result. There may come to mind one of Carlyle's best sayings, to the effect that a dupe is a rogue downside up; this is one of the truest things speakable, though in our context it verges almost on the unspeakably true. But you cannot believe that any such cause will explain a great part of such prevalence of homœopathy as has been witnessed. Indeed, gentlemen, the width and blackness of this disreputable blot on modern medicine is due, no doubt, to the narrow scope to which therapeutical science allowed itself to be limited formerly under the influence of theoretical systems, as pretentious and vain as homœopathy, but much more dangerous: systems in which violent measures in medicines and surgery were used, without mercy and almost without reflection, while the vast influences of wise nursing care were neglected; so that no one knew when a medicine had real efficiency, when it was unnecessary, and when useless or hurtful. But now, thanks to the originators of the medical press, a means has been found in it whereby the experience of observers can be compared, and medicine is no longer so dependent on the authority of enthusiasts. A common sense arises against the quackery

of systems; and thus, gradually, a balanced and stable system of truly rational medicine is formed, founded on careful observation of cases and unpretending attempts at cure correctly recorded. No doubt there is room for improvement now, and we are witnessing a tendency to force the drug-medicines by publication, by men in good position, of results which the experience of other observers does not support. But though such cures of chorea and boils, and so on, may serve their publishers' purpose, medicine is not much hurt, for other people can correct the wrong statements; and, spite such a gentleman's surprising cures, the world will come soon and commiserate with him on the perversity with which fate, usually so equitable, seemed set to force on him the delusion that his plan was better than others; or will grandly let him go unnoticed, and even let him take with him, as far as he can, the little he gets by it, perhaps not quite suppressing a certain smile at the one who goes glibly by with much benefit from his advertising gallipots of pancreatic filth.

The practical object of the remarks I shall have to address to you, in the course of the next three months, will be to give you a useful critical knowledge of the powers of really powerful remedies. It will be my official duty to make you acquainted with a deal that will not come under that description; and I must crave your patience and sympathy when that may appear too obvious

to you. Now, at medicine lecture a large part of this is put before you very ably, but from a point of view regarding primarily the diseased states, in some order which is founded on the diseases in their mutual relations. Such a mode of consideration makes it seriously likely that many of the powers and uses of the medicines themselves may escape your notice; for the several kinds of help which different remedies can give are so scattered about in the history of medicine, and hit upon hence so casually, that a clear notion of the special services of each could not be directly acquired in such a line of study. You want to take the several drugs that have any real powers; then to know something about them, which shall, as far as possible, explain their efficacy; and then to learn well the powers they have, and what disorders they are fitted to relieve, especially any peculiar use of the drug which experience may have brought to light; the last being, in my opinion, the most practically important knowledge, but only tolerable when based on the former. I said that at medicine lecture the consideration of the diseases is the primary consideration, and the consideration of their treatment follows. As a consequence of this, the order or proceeding in medicine is based on the method of considering diseases. The question the medicine lecturer asks is, "What is good for this?"

But we have to take up the drugs and

ask, "What is this good for?" so that we, on our part, must find some line of procedure having a proper regard to the mutual relations of the drugs. And that forces us to select some class of these relations for the purpose of determining our line of progress. But as we do not want to cut a figure in the march, but to have a good property at the end of it, we shall not consider the settlement of the sort of relations that shall guide us as a very vital question; which is fortunate for us, since it is a most debatable question. Very debatable questions, you know, must always be settled by will. Still, as the inquiry is capable of clear principle, we will look at it for a moment. Remedies are objects or forces which already are subject to classification in their several natural places; electricity, heat, &c., among the "modes of motion;" minerals, plants, and animal products in the works on chemistry, botany, and zoology or comparative anatomy. Now, we may keep them in this their usual scientific order; and this plan is usually adopted in works on materia medica. It is a plan I should employ without hesitation if I were a chemist and druggist. But we are users, and our function is not to store or sell drugs; and hence we will class them, so far as we class them at all, according to their uses in the cure of disease. But what is cure? Perhaps the vulgar notion of cure is very much this. They seem to suppose that the drugs would

fit diseases in a perfect way, if we only knew it. They apparently believe that if the stocks of the chemists' shops could at once be properly distributed in the bodies of all sufferers, a balance would be struck, and then and there all human illness would come to a happy end. An individual, in this belief, goes into a chemist's shop, and, as he looks at the bottles in bright array there, thinks that in one of them is that by which he might live; just as you may go into our museum of morbid anatomy, and, among all the bottles, know there is that in one of them of which you will die. But directly you, as a doctor, forsake this vulgar notion of cure, and enter on the question of relieving any diseased state, forthwith your intention finds itself opposite a division of the line ahead. For two aims present themselves: one is, to know what causes the disease, and to meet its causes by the light of that knowledge; the other is, to recognise the disease as one for which a cure is already known, and to use the cure at once.

The first of these plans, that which seeks to act on a knowledge of causes, is called the rational system; the second, which seeks to recognise the disease and apply known cures, is called the empirical system. Now, when you hear that one system is rational and the other empirical, no doubt can exist as to which you incline to prefer. But it is not fair to suppose that the first plan is really the more rational, in the

sense of being prudent and proper, because it is called so, any more than it is fair to suppose the Liberal party, so called, is not really more mean than the Conservative party, because it has laid hold upon the name which carries so favourable an impression. I say this, because you often find writers talking up the first plan as rational, as though it had the Goddess of Reason at least, if not Wisdom herself, on its side. But a little consideration will show you that the proper name of such a plan is the *deductive* system, not the rational system; for it professes to act by deduction from general truths already acquired or supposed. If you call this system by its proper descriptive name, *deductive*, then this name, instead of giving it a false colour of superior virtue, shows its inherent weakness. The plan assumes that we know enough to act upon about the causes of disease.

Gentlemen, it is difficult to speak in measured terms of the horrible results that have followed from this fatal assumption. It is this *irrational deduction* which has been the curse of medicine in all ages. This deduction, so irrational, is drawn from principles generally entirely false, and always so incomplete as to be beyond all bounds insufficient, so as to be often worse than false in their effects, even if true in themselves; yet you hear some describing the deductive, or the so-called rational, system as the pride of medicine. And those who have said this are so

great, and so justified in feeling what the pride of medicine really is as a sensation, that one must submit; only replying that, if it be the pride of medicine, it has been the fatal curse of patients who have been hurried into the next world with the lancet or brandy-bottle on rational principles. Gentlemen, believe me these deductive systems are not rational; they are deductive on insufficient grounds, and hence are the opposite of rational in any commendable sense of that term.

I will not detain you long on such systems, but will try to explain on very simple principles some things that are commonly admitted as worth notice, such as the Brunonian system, the doctrine of Rasori, the homœopathic and allopathic systems, which, though usually regarded by honest physicians with proper contempt, are nevertheless not unfair, though coarse, examples of rational systems generally. To properly grasp these systems, it will be well to go through a little reflection of a psychological kind, but very elementary in degree. The simplest of mental phenomena is the perception of more and less. I say this is the simplest, because it takes consideration of only one property, that of degree or size. The simplicity of the notion more and less gives it a deep hold in our nature; and this is increased by the fact that it is so well beaten into all young human beings at school in their boyhood, in the shape of arithmetic and algebra,

which are its higher developments, that it becomes the most fundamental part of their mental organisation. The consequence is, that all our lives afterwards the reasoning faculties operate most easily in the directions more and less, *plus* and *minus;* and, from a rational point of view, they are most disposed to consider things as varying in that simple relation. In medicine by system, accordingly, you find the easy notion more and less come forward very readily, and you will see that, with only the adoption of special words, it constitutes the Brunonian system and the doctrines of Rasori, of Broussais, and others. To make the Brunonian system, Dr. Brown gets the notion that life is all stimulation, but sometimes more stimulation and sometimes less stimulation; and when there is a certain degree of more or less stimulation, then either of these states makes disease. Therefore, you must find some way, in the first case, of bringing down the stimulation with lower stimulants, and in the second of bringing up the stimulation with higher stimulants. The doctrine of contra-stimulus of Rasori differs only in that what Dr. Brown called less stimulation Rasori thought to be the opposite of stimulation. As, however, neither of them could know whether it was so or not, we need not follow the arguments. Nothing could be more rude and futile than the attempt to consider all the various diseases and remedies as simply more and less, when differences of

kind are so evident and important among them.

To turn, then, to the various kinds of -paths. The deductive mind, overpowered by an excess of the arithmetical and disciplinary conception of more and less, makes a Brunonian. In a parallel way, the same sort of mind, engaged by the conception of like and unlike, becomes some sort of a -path —say, usually, a homœopath. The notion of like and unlike grows very early in babyhood; it is, unfortunately, not much subject to discipline at school, but is allowed to be loose in young people, and so it grows up loose in them when they are older; so that, commonly, adults do not mean anything very accurate by the statement that one thing is like another. Perhaps, to say that one thing is like another is the weakest thing you can say about it; the likeness may be poetic, or comic, or simply delusive, making you mistake one article for another, so that you do the wrong thing with it. The result is, that adults often require to be told that they mean sometimes one thing and sometimes another by likeness, and are then, perhaps, as surprised as M. Jourdain when he learned he had been talking prose all his life. When like has any strictness at all, it means identical. It means that or nothing. Follow me carefully for a moment. A thing that is entirely like another thing is entirely identical with it. A thing that, without being entirely like another thing, is yet

like it for some purposes sufficient for the meaning at the time, is *identical* so far as those purposes are concerned. In short, likeness is identity *so far as the word like has any force.* Stones of the same shape and size are alike for the mason; if they are of different durability, they are not alike for the house-owner. "Yahoos" are like men for the purpose of being laughed at. Thus likeness may be defined as *identity for the purpose in question.* Yet the term like is, from boyhood, used so fast and loose, from the likeness of equilateral triangles to the likeness of Jack to a monkey, that, when the boy grows into a homœopath, he is ready to attach any meaning to like, from identity to the most fanciful resemblance. Now, in a general way, people believe that unlike things oppose each other, whether these unlike things are diseases or any other things. Such a notion is not worth much, unless you apply it strictly; but, in the only sense in which it has a strict application, it is an identical proposition; for you mean really opposite by unlike, or else you do not mean anything definable. You mean opposite so far as unlike; so that your proposition is that opposite things oppose each other so far as they are opposite—a proposition of infantine simplicity; true, surely, and cogent wherever applicable. It is so evident, that I do not think any school of doctors ever proclaimed it; if they did, they would be allopaths.

But a notorious person named Hahnemann, taking advantage of the fact that doctors, who proceed according to common sense, do not save everybody from dying, rose against common sense, and said like cures like—*similia similibus curantur*. Then was seen how unhappy it is that this idea of like is left at school in such undiscipline; for a whole crowd, ready for something new, go after him, not knowing how to deal with so manifold a thing as likeness, and not caring what it means. But if you examine the proposition "like cures like," you see its puerility, so far as it has any apprehensible meaning. We have seen that likeness is identity so far as the word has any force. It is practical identity of quantity, if quantity is being considered; of colour, if colour is being considered; and so on. Thus Hahnemann's proposition, so far as it has any accurate or apprehensible meaning, is that identical things have opposite results; nothing being said about the fulcrum which alone could make the arrangement rationally possible.

But it may be said that the cure and the disease are not really alike, but only appear alike. Then the proposition has to be changed to—apparently similar things cure each other. That assumes that things are made to have likenesses the opposite of their real natures; and a proposition of that kind is in every way too empty to be further noticed. Hence we may dismiss homœopathy

from consideration, especially as the practice of its professors really no longer differs from that of doctors who do not adopt its absurdities. Indeed, the system is well known to have degenerated into a means of attracting the notice of the public by means of globule-boxes and tinctures.

It is worth while to thus consider these coarse examples of deductive systems of therapeutics, not on account of their worth, but because you will find that all deductive systems of medical therapeutics, even when far less pretentious and vain than homœopathy, are really irrational, if less flagrantly so. And I could, if I had time, show you that it is by the forcing of puerile and crude deductions that all rational schools arise in medicine. Such schools are nothing more respectable than boyish notions of quantity and likeness, &c., brought by weak men into complex realities to which they are wholly inapplicable; so that at best such systems are as though children should be taught to play about with poisons at the tables where confiding guests are accustomed to seek refreshment.

What you want in the practice of medicine is a close and well-trained observation of the descriptive nature of the kinds of diseases, and of the effects of drugs on them. You must know these well, or you ought not to have an easy conscience. You must be able to recognise the several kinds of disease, and to use the remedies that are best for each

kind. Mistrust plans of treatment, in proportion as the reasonings they are founded on are deduced from abstract considerations. Beware of the reasonings in medical therapeutics. I shall have to show you that there is scarcely an exception in medicine to this rule, that all deduced general plans of treatment have been pernicious; that deductive reasoning has been the curse of medicine—I mean of patients. Those who have well observed the results that actually follow when remedies are used under well-recognised conditions are the real benefactors of the sick. A steady process of induction is what we want; induction, often in its humblest degree, which shall often give a scarcely communicable experience to guide the watchful physician. Such inductions as that quinine cures ague, iodide of potassium cures tertiary syphilis, tarry preparations cure scaly eruptions, are the best stock of even nineteenth century medicine, and, however mean in the scale of mental performances, are of priceless value in the shivers of intermittent fever, the tortures of cranial syphilis, and the itch of psoriasis, with which you have to do. Such inductions are commonly in harmony with the teachings of physiology; but I advise you to hold them a good deal distinct from those teachings, and do not be too ready to allow them to rest, even in appearance, on those teachings.

In what I have to say on the several

drugs, I shall follow the order of the therapeutic divisions in Dr. Garrod's work, which I recommend to you. We shall have an opportunity of noticing in succession the sorts of actions on the human body which the various drugs possess. My object will be to introduce to your notice each medicine in the position it has in such a therapeutical scale. Very often you will find that a medicine has several uses, and in giving the notice of the history of each I shall take all its important powers into consideration; but I shall try to bring the several medicines into that part of the scale of which they are most typical and proper representatives.

THE BIOLOGIST AND THE PHYSICIAN.*

We are met this evening, on the birthday of John Hunter, to call to mind and to honour a kind of man to whom ordinary men, and also extraordinary men, owe an earnest reverence. Hunter was born in 1728; so we have to go some distance back for our hero. And the world has changed since he lived; and many men of note in the line of his excellence have become conspicuous between his time and ours, —in a period in which, as Mr. Carlyle says, "every cellular vascular muscular tissue glories in its Lawrences, Majendies, Bichats,"—so that one may well conclude he was indeed great to be still visible above and beyond such a number of great ones. And even the current time is, as usual, at no loss for heroes in this as in every other line of excellence. The cynical historian of Don Juan says—

"I want a hero! An uncommon want,
When every year and month sends forth a new one,
Till, after cloying the gazettes with cant,
The age discovers that he's not the true one."

* Being the Annual Address delivered before the Hunterian Society in 1877.

A serious reflection for any group of hero-worshippers at all in doubt of their hero—if Mr. Carlyle is right in fixing it upon them, that to worship a flunkey is a sure sign of a flunkey. But I am secure of my hero to-night, and am allowed the further assurance that, should I fail to do right honour to him, his merits have been yesterday elsewhere well rendered; and whereas in contrast with that rendering I must needs suffer, I shall take for my comfort the well-known comfort of Livy the historian, using a little liberty with his Latin, and say, "Si in tanti oratoris umbra mea fama in obscuro sit, nobilitate et magnitudine ejus, meo qui nomini obficiet, me consoler." Yet it will be for me to remember the duty each of us owes to the hour we spend here, and the duty I owe to your significance, that I may, in Hunter's name, justify, as far as I can, this sacrifice of living time to the recollection of the dead—if dead he should be called whose spirit was not lost as though a ghost had been given up, but was transferred as a living activity to others who in succession continue the work of his life.

Among the crowd who constantly pass out of existence how few deserve at the hands of their fellows anything but utter oblivion! Shoals leave no evident works to follow them except the children in the funeral procession. And as to those who possess what the lawyers call effects, these effects begin to very properly hide their cause

as soon as his will is read. Effects naturally hide, and, as it were, bury, their causes. So far as this kind of life, or rather half-life, goes, it merits of this world the forgetfulness that swiftly ensues upon it. But some men lay a just claim to the recollection of after time, and this in very various ways. There are those who have had a certain influence on the course of public affairs—the men whose doings become items in the history of parties or of the nation, and are read about when attention turns to these subjects. But the significance of these men dwindles, for deeds such as theirs are from their very nature soon forgotten. Fresh turns in public affairs bring up new personages, and however great the effort made, and however great the display of it, yet, inasmuch as a great good to many is apt to be a remote or a small good to any, what was once the admired eloquence of the Chancellor's Budget speech is lost in a farthing a pound off sugar, or even less than that. And soon something else must be done to keep up a reputation even during the great man's lifetime, let alone to keep him in posthumous recollection. All which ready forgetfulness I think natural and proper. For as to these great men of historic actions, such is the relation of men and things, that those men are most really trusted to conduct the commonweal who have most respect to the things of the time, and most duly regard the magnitude of the several active

interests at play in its issues; so it is only because they represent things that great men of this kind are great. And all things pass away out of recollection, and always did. So I don't see why their representatives should not follow them, which they always do. Those great deeds for the sake of many, which are nearly nothing to any, follow the law of *items*, of things, which come and go. And remote as they are from any personal life, save as glorifying their doer, they scarcely balance in true usefulness the more lowly labour of him who saves a soul or cures a body.

Far above all these men, whose deeds are particular items and follow the law of items; far above them all, in another rank, are those who create and leave behind them principles of knowledge, which enable their successors to compass better the nature of the world they are placed in—men who raise higher the pitch of human power, and make wider the scope of human knowledge and the range of human sympathy, so that more can be done by mankind after them than was done before them. These kings and masters of mankind are often not the most prominent amongst their contemporaries. But they are remembered when great men of the item class, whose grandeur at the period made these scarcely noticeable, have gone, as I said, very properly away.

Now, it may be worth while, for the better mutual understanding of the kind of great-

ness we are to consider to-night, to make one or two observations upon the reasons which so often for a long time cause the lustre to light upon the wrong head. If, with this aim, we look about us, we may see that a man's power amongst those who live around him may depend on either of three distinct kinds of ability. First, the power of learning what is taught by others; second, the power of employing what you learn from others; and third, the power of originating useful truths. Now, if we consider for a moment, we shall recognise that these abilities are, each of them, very differently estimated by contemporaries and by successors. One of these powers may be possessed to a degree which will dazzle and amaze your contemporaries, and yet may go for very little with your successors, and *vice versâ*. Thus, the first power, that of learning what is taught by others, may make a very brilliant man, a hero of the hour or of the day, such as a Senior Wrangler. It is a power that glows around youth, and is full of promise of great deeds to come. The world at the time admires; but the world to follow thinks nothing of it. Perhaps one feels a momentary interest in knowing that Cardinal Wolsey, as the boy-bachelor, learned Greek and Mathematics very quickly. But if that were all he had done we should never have heard of him. For such learners do but possess themselves of what is already common property, and there is a limit to the

credit they can receive. Indeed it is particularly noticeable that this learning power, if carried far into adult life, loses much of its lustre. The faculty of learning what is taught by others is, I say, chiefly, if not only, graceful in youth—for in it the mind learns by adapting itself to the matter taught, and too plastic and mobile a mind is not good for adult years. The second power, that of employing what you have learned from others, is looked for in those who have advanced into full life. By this power all new learning is made to adapt itself to the mind. It is, in fact, a more manly power.

But it is worth while to notice that this power of using what you have learned from others may exist to a surprising degree in men who have very little of the first power of learning, and still less, perhaps, of the third power of originating. Yet, when it does exist, it gives a certain eminence to its possessor, who is always a person to be, in a certain way, envied; as when he is one of those orators you hear, who shall speak in excellent English, and most engagingly, matter which is all so far from new to you that the treat, rich as it is, is not a treat of the intellectual kind. Or when he is one of those successful men in professions who suavely and in a cherished and highly paid manner deliver to the public the advice their much-forgotten teachers taught them to give; or one of those allied lucky ones

who, adopting the principle which some poor inventor has devised, markets it successfully, and makes a vast fortune to keep him comfortable, when perhaps the inventor has spent all the little sum he got for the invention, and is in want of more. Eminence of this second order may extend along the whole period of a man's life, yet it is little remembered. They praise you while you do well to yourself, but not for long afterwards. True, there may have been a few deeper ones of this order, who want damning rather than praise, who have managed, clever fellows as they were, to gain even the credit as well as the profit of discoveries, when they merely had the astuteness to rely upon a mighty man who could not rely upon himself.

The third power, that of originating useful truths and things not yet known to others, is the power which is truly worshipful. Those ancient peoples were right who made divinities of the introducers of fire and of the plough, of corn and of wine. In such men the divine idea in Nature is communicated to humanity, and inspiration becomes a fact of history. These inspired originators, having the gift of perceiving the scope and power of a principle in Nature, seize upon that principle, and bring it down to human use. They place new means of achievement in the hands of mankind. Man, indeed, has so become human, and humanity divine. Human power is above brute power by the

constructive faculties of such great men. It is only these creators that truly live. These men do not pass away as particular items. They have an immortality truly distinct from that other immortality the hope of which is cut in tomb-slabs. But neither have they, like so many great ones, cast away the hopes of the one immortality to achieve the other, as though to reveal one kind of light the other must be put down.

Now if, whilst thus approaching our recollection of Hunter, I have in speaking of him touched the highest places in History and Fame, I am surely justified by the greatness of his doings and their permanence. Surgery and Medicine have grown greater since his time. But who will say that in the greater surgery and medicine of our day there is a man so great that he cannot learn from the career of Hunter? I ask the pardon of my contemporaries, and Hunter is not one of those for whose greatness to be seen it needs that others be pulled down. Perhaps, too, if individuals shine now in less solitary glory, it is because the light is so great from so many luminaries that each individual lamp makes little show. It needs relative darkness to draw attention to a light.

But how shall I represent him so that I do no injustice to him, nor injure his influence to the extent of my power in the tracing I shall make? It is a hard task in portraiture to publicly exhibit the idea of a life, and especially such a life as Hunter's.

We read of him that even the greatest of portrait-painters, Sir Joshua Reynolds, could not succeed in taking a likeness that had Hunter in it, and, when almost in despair, turned his canvas upside-down to record a sudden inspiration which revealed to him the true Hunter of this print—Hunter thinking towards truth that shall be power.

Now, the idea of Hunter's life which has come to me most strongly as I have had the pleasure of reading again his works for this occasion, is mainly this: that Hunter was great through his genius in the application of the experimental method in physiology to the purposes of surgery; and that he applied this method in physiology so that, of all men either before or after him, he was the most intelligent and richly endowed amongst the workers who in this direction have sought to bring science to practical use. To experiment and observe for the improvement of surgery, that was the aim which distinguished him. The rest of him was common humanity. Strange that it should be remarkable, he was found as early as five o'clock in the morning at his labours in his museum. So that he was as assiduous in the noble work of his life as thousands of large linen-drapers are in the making of their fortunes. He was open-hearted too, and ready with honest anger on occasion. All this is good North-British character, useful and praiseworthy. You may read about it in the "Cyclopædia." It is common

humanity. And that, I suppose, is the greatest part of every man, and of every man it is the best part. But as an instinctive worker on the experimental method in physiology he was gifted with insight and with adapted forethought; and hence he laboured successfully where the utmost patience and the utmost truthfulness without such insight must fail, and where also the mind requires to be carefully restrained from pursuing inquiry beyond those limits where experiment cannot reach sound conclusions, and threatens to degenerate into mere cruelty.

In this field of experimental physiology Hunter was successful, and thus to-night we have met to honour a man who succeeded where I shall presently show, from the highest authority in logic, success was impossible. Such men enable us to know how the impossible is made to come to pass in this wonderful world. And we have to see that he achieved the impossible by sacrificing to his search after it all that luxury of omniscient criticism which keeps us little minds so sure of the impossibility of the impossible that we sit down before difficulties which he conquered and dissipated. Such men give over all those selfish, self-satisfied certainties of logic which persuade the intellect as impotence persuades the will and as sleep persuades activity. They may be said to sacrifice themselves, all their lives, to create and realise for others what those others'

science of the impossible had kept them from.

His profession was one whose ostensible aim has always been boundless in the sense of unlimited, but its success boundless in the sense of indefinite—sometimes esteemed as with Æsculapius amongst the gods, and sometimes judged almost with Sganarelle amongst the comic impostors, and satirised as scarcely honest.

Dealing with a life influenced by nature at all points, the physician tends to be a professed nature-knower. He prides himself on a title which touches in him a kind of claim to the knowledge of nature. There is no more beautiful idea than that expressed by this word Nature—the spirit of the things that grow—in such mysterious antithesis to the form of things that are made; Nature, the sanction of so many strange actions and customs; the ultimate appeal, to which man at his proudest in Church or in State must be content to come, whether he will or no. The physician delights to be eloquently told that his field of knowledge is nature and human nature; and such graceful sententious utterances are true enough in oratory, and would far better suit an oration wherein men's sympathies are to be called out beyond commonplace, than would any criticism or limitation of this most ambitious claim. And is it not true, in the one direction, that, as to human nature, doctors are wanted wherever humanity collects in armies or

expeditions to the poles, or even at home here in large business offices? And in the other direction, do we not bring the young physician through all the sciences? and are we not ready, as a sort of godfathers, to make the young ones swear by proxy that they will undertake any fresh additions to the curriculum?—a conclusion at which, I fear, they may be sometimes tempted to swear without proxy, when they come to try it.

All the world is deeply concerned in wishing success to Hunter's profession in its wide study of nature and of human nature. But it will always be necessary so to study nature as not to fall foul of the laws of human nature. This wide study of nature and human nature is the spirit of the Baconian philosophy, the spirit of inductive inquiry, the spirit of modern civilisation; the spirit, at least, in which alone modern civilisation can hope to surpass the great systems of civilisation which have died away of old. The Baconian philosophy, which we are proud to follow, is nothing else than a resolute ambition. The width of the scope of Bacon's aim was all that was peculiar to him; that, indeed, was all he claimed as new. Bacon taught us to add to the substance of knowledge by more and closer observation; whilst those before him, instead of adding to the little substance of knowledge they had, were content to spend their lives in playing upon that little knowledge with their lively imaginations. But Bacon,

in his wonderful work, laid down plans for gathering truths of nature and human nature. His design did not merely comprise the perfecting of natural philosophy; he plainly said how wide his aim was. He intended to comprehend all the sciences—even logic, ethics, politics. This is what he says:—"For we form the history and tables of invention for anger, fear, shame, and the like, and also for examples in civil life, and the mental operations of memory, composition, division, judgment, and the rest; as well as for heat, cold, light, vegetation, and the like." And well he vindicated his system, where success on its lines was then possible. One cannot but wonder at the power he shows in his curiously classified "instances," and recognise the close approach he made to truths whose discoveries were to be the pride of later ages. By his tables of heat he reached the otherwise very modern conclusion that heat is a mode of motion. He touched on the integral calculus, and the theory of tides, and other discoveries that came, in some instances, centuries after him. With such a spirit, a thought of limits to the possibilities of science must have been something mysterious to his conviction of infinite knowledge, as pain and evil are mysteries to those whose hope and aim are for infinite goodness. And the profession to which Hunter belonged embodies the same spirit, and extends its research out into the world around, seeking to know, by

means of induction, the mental operations, memory, composition, division, and judgment, and the like, as well as heat, cold, light, vegetation, and the like. This enthusiasm for universal knowledge animates the young physician, if he is worthy of his name, which name lays a claim to the knowledge of all nature.

But the ambition to complete the knowledge of living nature and of human nature by inductive methods, which Bacon announced and urged, which was so long unattempted, which Hunter at length pursued, and which the medical profession now is following,—this ambition of experimentally analysing life is not unchallenged and unopposed. The profession which extends its claim to such knowledge is met by a spirit of denial; and this spirit of denial has taken up a very lofty position, held by a very formidable champion.

I do not, of course, allude to the scepticism of the ignorant, who scoff at any science of medicine, and refuse to believe in a knowledge of the laws of life if that knowledge does not give power to break those laws.

Nor do I allude to the satirists who, like Molière, find in the queer characters and pretenders amongst the doctors of their time good marks for pungent ridicule, which is both innocent and often useful.

Nor to those who, moved by a strangely narrowed humanity, which in this extreme is surely mistaken, impute to the motive of

relieving sufferings a hateful readiness to inflict them.

But I refer to a far more grave and serious accuser—the greatest, or at least the most exact, thinker of modern times, and perhaps the most, or nearly the most, masterly genius in analysis that ever lived; a man whose antagonism will not be lightly thought of; and, it must be said, a man not at all ill affected to the inductive philosophy of Bacon. I refer to Mr. John Stuart Mill, the framer of the canons of the inductive method, who, after deep and experienced consideration, lays down the laws of that method of inquiry, from which method Bacon drew such inspiring hopes of universal knowledge, and in which method the profession of Hunter works. Mr. Mill, in fact, made it into a method. With Bacon, and with the profession of Hunter, it was, and is, rather a resolute ambition than a method. Mr. Mill concludes that it is not possible, by Bacon's method, to do very much that Bacon looked forward to, and that the medical profession is bound to try and achieve.

Thus, although this is not quite in the line of progress of my argument, let me recall what Bacon so bravely said as to his forming tables of fear, shame, and the like, and also as to the power of his method over politics and ethics. Now, hear what Mr. Mill writes. He speaks of Bacon's eloquent hope as a vulgar notion. He says—"The

vulgar notion that the safe methods in political subjects are those of Baconian induction, that the true guide is not general reasoning, but specific experience, will one day be quoted as among the most unequivocal marks of a low state of the speculative faculties in any age in which it is credited." Now, if you refer to Mr. Mill's "Logic," book i. page 492, you will see that he had worked up to that observation through several pages devoted to proving that it is impossible to know by induction the action of a remedy. To remind you how uncompromising he is, I will, if you will allow me, read you a short extract. He chooses mercury to illustrate what he has to say, and he is proving that you cannot know whether mercury cures a disease or not. He describes the precautions necessary for any inductive method of proceeding, and then he says:—"These precautions are inapplicable to such cases as we are now considering. The mercury of our experiment being tried with an unknown multitude of other influencing circumstances, the mere fact of their being influencing circumstances implies that they disguise the effect of the mercury, and precludes us from knowing whether it has any effect or not. . . . Anything like a scientific use of the method of experiment in these complicated cases is therefore out of the question."

Certainly this places a very gloomy view of its possibilities before the profession that

Hunter belonged to. Mr. Mill says, You can only be right largely by chance. You cannot know whether you are right or not. The canons of your method are against you. You must go by what artificial light you can create. The daylight of proof and certain truth are denied to you for ever. And hearing this we might well be discouraged, for Mr. Mill was a great man.

And did he over-estimate the difficulties of Hunter's profession when he thus wrote? Must we not confess how often in our most formal efforts we not only cannot obtain answers, but cannot even ask good questions? Take our discussion on syphilis, so ably introduced at the Pathological Society. There we all, with much strife of tongues, mainly sought to elicit whether syphilis is a disease of the blood or of the solids; whereas it is so utterly impossible to have disease of the one without disease of the other, that the proceeding was most like speaking for ten weeks on the question whether it is the sunlight or your body that makes your shadow on the wall. Doubtless, when it was keenly said that syphilis was a flesh-and-blood disease, the whole secret of this issue was rightly touched. What with questions that are no questions, and questions that cannot be answered, and questions whose answers teach nothing, we flatter Mr. Mill to the top of his bent against us. Can you fancy his grim satisfaction, if his ghost thought it worth while to listen, in the

absence of Parliamentary debates, to the discussions at the Clinical Society upon the questions whether phosphorus cures leukæmia, and whether salicin cures rheumatism? How, by such processes as those followed, *could* such questions be solved? Unfortunately there was really no question as to the phosphorus, when some simple person pointed out that the leukæmic patients all die in spite of it. Mr. Mill, however, might wonder if all the distinguished physicians had read his "Logic," so ready were some to proclaim the success of phosphorus on the strength of temporary upward fluctuations under its use in two cases of a very variable disease. He would scarcely have wanted against them such an instance as a man with leukæmia to whom I gave phosphorus pills. The poor fellow said he was much better for some time; and meanwhile, by directing a proper method of examination, we found that the phosphorus pills came away just as they were swallowed!

As to the other and better-founded question, whether salicin cures rheumatism, Mr. Mill need only put the word "salicin" for "mercury" in a passage of his "Logic," and it would stand thus:—"Supposing even that salicin does tend to cure the disease, so many causes, both natural and artificial, also tend to cure it that there are sure to be abundant instances of recovery in which salicin has not been administered." In truth he might have said to us, "Don't you see that if you

try ever so to make successful experiments on this question, you will find at last that you don't quite know what you are looking for? Is it recovery? Well, but recoveries are happily so nearly constant in rheumatism that to search for them would be like looking through the crowded trees to find the wood. What you should look for is some way of knowing a salicin-recovery from any other sort of recovery. When you know a salicin-recovery from a potash-recovery or a peppermint-water-recovery, then you may come to a useful conclusion; and that, if any, was the proper question for your Society." Perhaps it is a soluble question.

Neither would Mr. Mill yield any more homage to a type of our modern experiments, such as that undertaken by a certain committee to decide the question whether mercury is useful in moving the bile. The practical question before that committee was whether mercury would unload engorged human livers. To settle this they took *healthy* dogs, and, regarding lightly the vastly important connections of the duct or pipe which carries bile out of the liver, this duct, with its neighbouring vessels and nerves, and its wonderful structure, they cut boldly through and brought it to the surface, and fastened it to the skin outside, and then they gave the dog mercury,—and they say it did not unload him of bile! Now, I can fancy that Mr. Mill would grin rather solemnly at that experiment, if he

were fond of dogs. For, first, as to unloading the dog's liver, it was not shown to be loaded at all, like the engorged human livers of the *practical* question are loaded, which loaded livers mercury is thought to relieve. And Mr. Mill might ask, "What did these people think we meant when we said mercury unloaded the liver? Did they think we meant that it squeezed it as in a cheese-press? Or what force did they think the mercury would use that it could act in spite of all this rudeness? Does experience lead us to think biliousness is determined by very rough measures? Some people grow bilious on sherry, and not on port; and if the bile is determined by such trifles, could it be indifferent to the dragging of the bile-duct from its supremely important connections and cutting and tying it? Surely it is possible that it is along this pipe that the mercury acts, so that its channel was cut off." And Mr. Mill might say what I would not, and ask whether a simpler experiment would not have answered better. He might ask whether, if this committee, instead of hardening their hearts and sharpening their knives, had met in a protracted dinner-party to quicken their brains and thoroughly engorge their livers, and had then each taken a blue pill, and in due time held another committee, the experiment would not have been, if of less boastful quality, more truly reasonable, and might not have ended in establishing mercury more firmly than ever in its

almost proprietary command over the British liver.

Thus would Mr. Mill triumph over us, acting, as such experimenters were, in the best intentions, and would say, "So to use dogs is not wicked, because of your good meaning; but it is worse than wicked, it is bad logic."

And thus might we have to hide our diminished heads, with our mercury, and salicin, and phosphorus, and perhaps have considered our ways in fear of Mr. Mill, and penitently used up all the pharmacopœial phosphorus to tip all the pharmacopœial sarsaparilla sticks and dulcamara sticks to make matches, to burn up the rest of the materia medica periodically at the shrine of Mr. Mill; and the British nation have to erect temples to the fevers and to evil fortune, as Cicero says folks did in the days of ancient Rome.

But we don't do so. We stand by our remedies, because we find that we have somehow come into possession of general inductions, even about ever-mysterious life and its troubles, which would be very valuable in case any of Mr. Mill's followers should be so unfortunate as to have epileptic fits, or if any of their babies should have, say, the thrush, or if they should suffer in a hundred other ways that I could name. Our cures may have come into existence in sad defiance of the laws of induction, and we may have to apologise to those laws for their existence.

Yet there these laws of cure obstinately are, and their existence cannot be denied or explained away. It is too true, however, and it is a very curious fact, that nearly all the really powerful remedies came from a sort of people who could have known nothing of the laws of induction. Indeed, I can imagine Mr. Mill turning upon our chief remedies to show them all to be the product of periods and places strange to the inductive philosophy—periods of the infancy of manhood or of race, when the mind may have been like protoplasm, and, as Mr. Huxley appears to suppose in the case of protoplasm, may have been able to use powers which had not yet limited themselves by separate existence, so as to operate in a sort of potential-indicative mood, present-future tense. The minds of savages may have acted on this protoplasmatic principle, not having yet tied themselves down to grammar, when they found out the uses of opium and of ipecacuanha. I can understand Mr. Mill saying, "You do not divide your awards of credit quite faithfully, you of this loquacious age. Nobody knows who first gave opium. You say much about the finding of morphia in it, and that was very scientific and clever; but if he who found morphia was a hero, he who found opium was a god. Why don't you every year have an oration to those old fishwives who discovered the law that rickety infants get better by cod-liver oil? and another oration to those savages who

perceived the laws of the use of ipecacuanha? and another to those other savages that found out the laws of the use of Peruvian bark? and surely another to those doubly wonderful ones who gave burnt sponge in goître, and so made it providentially possible that finding iodine in the burnt sponge could suggest that iodide might be the cause of the goître-cure? Those unknown personages, forgotten perhaps because the Muse of History could not pronounce their names, were not adepts in experimental physiology. Yet, deprived of opium, ipecacuanha, bark, iodine, and cod-liver oil, what have you got left comparable to these in direct usefulness and due to the experimental method? And if you really give yourselves to inquire how your profession did, as a matter of history, get hold of its most invaluable agencies, you see it was by the genius of wonderful savages. And that genius, if you seek what corresponds most nearly to it in your own highly civilised minds, would be, I say, the art of observation; the genius of insight; the quick, keen sense of effect following cause, which the eye that lets nothing pass unnoticed catches and the brain registers because it is not wool-gathering in bad experiments and inductions." Truly, Mr. Mill is hard to please.

And here, lest Mr. Mill should triumph over us for ever, I am reminded of my great theme of this night. No doubt, if progress in our profession were dependent on ordinary

men, or even on committees, Mr. Mill would triumph over us for ever. But Mr. Mill, like all men of system, who argue human nature into a machinery, falls into this fallacy—that he supposes always a common *degree* of intelligence, for which he and his followers make laws of more and less, equal and unequal, saying at last, "Hitherto shalt thou come, and no farther!" Thus moralists suppose average moral susceptibilities in the readers of their books; and clergymen average goodness or badness in the people around the pulpit. But intelligence is not of a nature to be treated in that way. For, like fire, or like that electricity which nerve-work so much resembles, intelligence has two wholly different modes of increase—increase in quantity and increase in intensity. I mean so that, just as by adding a pint of lukewarm water to another pint of lukewarm water you only get two pints of lukewarm water, and no number of pints of lukewarm water would ever make any of it boil,—so with intelligence of a given degree, any more of the same degree, say in committees, would not raise higher the intensity and penetration of intelligence. And Mr. Mill's rules of induction are for a certain standard of intelligence, and somehow did not consider the case of extraordinary intelligence. Mr. Mill left it to his "Autobiography" to show that he allowed, at least in Mr. Carlyle, the power of a sudden reach of thought, which he could only slowly follow, but in which, like *Punch's*

"Athlete, after Rubens," he perhaps "never caught him, though." Now, Mr. Carlyle—whose greatness is so conspicuous, in that two so strong and so different as Mill and Ruskin equally bow down in reverence to him, without waiting, as usual, until he is dead,—Mr. Carlyle on "Heroes" better shows why Hunter should have discovered laws of life, in spite of Mill's canons of induction. Let me read you a piece from "The Hero as Poet:"—"And, indeed, may we not say that intellect altogether expresses the power of discerning what an object is? Is it even a business, a thing to be done? The gifted man is he who *sees* the essential point, and leaves all the rest as surplusage." Mill, you see, lays down laws for the worker at a dead level, more of whose work is more of the same. Carlyle—himself possessing the poetic faculty, which Mill did not; for, as he says in his "Autobiography," he rested his admiration finally on Wordsworth, who did all things poetical with much unpoetic labour,—Carlyle, himself a poet, perceives that the power of seeing, which inspires the great ones of our race to be *seers*, raises them above Mill's rules, just as the intensity of flame is raised above the laws of hot water.

Gentlemen, it is thus we must recognise such men as have made real what Mill, that master of denial, that "*Geist der stets verneint*," declared impossible. Mill proves, in cold formality, that by experiment and observation you cannot discern the laws of living

nature. Hunter, warm with ardour in his noble pursuit, discovered law after law of living nature, and was one of the first to make possible that knowledge of living nature which is a very worthy pride of our very proud generation.

And I do well to quote upon him "The Hero as Poet." For Hunter showed a most fertile imagination. Did a fact come before him, forthwith arose vivid suggestions which he pursued ardently. Hunter's mind was fruitful of hypotheses and analogies,—they came freely; and his great excellence lay in the truthfulness and industry with which he verified or rejected them. He directly repudiates the looking for principles by studying facts. With him facts were to establish principles—principles whose rise constituted the power and life of his mind. He was not the biologist who, even if he found it among facts, would accept an apes-universe. A universe without a leading principle like to the power and life of his mind was a thing he refused to recognise. Whatever we may say of the crudity of his belief in a vital principle, if you study his works you will, I believe, find that belief to have been no mere accidental ingredient in a mind otherwise comparable to that of the biologists who construct a universe out of fragmentary facts. If you take away from him his faith in a vital principle, you undo him. That belief animates and is the soul and faith of him, no mere chance ingredient.

Without it his genius is reduced to mere instinct. He would be the first to rise against such a rendering of the source of his power. His was the true poet's imagination, fertile not in freaks of morbid fancy couched in verses full of "fume" and "spume" on some revolting theme of lust, or rage, or despair, like some fashionable poets of a modern school. He was greater even than the true poet whose works mirror Nature truthfully. He was a poet whose rich imagination thrilled to accompany the secret harmonies of Nature's design. Such men make almost tangible that great poetic Power, whom, seeing in His works, we ignorantly worship. Like a *true* poet, he rose from truth to truth by keenly seeing analogies between known and unknown. Yet, like a man of sense and science, he held always to an answerable question, and in its solution showed grandly that intellect which, as Carlyle says, "*sees* the essential point, and leaves all the rest as surplusage." So, in common with all modest labourers in science, leading by the hidden likeness of strangely different things into that oneness which man longs for as rest from his task of inquiry, the oneness which seems almost within our reach, as, with Odling, we see the elements of chemistry becoming terms in an arithmetical progression of numbers; and with Mill, in one of his poetic times—for all men have a little poetry at times,—we see the intellect as chemical combination

of ideas, which in uniting reveal new phenomena.

Hunter did not see Nature in a servile spirit. He went to her to practise his active intelligence, not to bring facts like a cart-horse brings dust, nor to heap his memory with scientific details until it became the Arcana of Science. Loving Nature as he did, hear how he speaks of facts. He says:—"The surgeon who should wish to resemble those Chinese philosophers, whose knowledge consists only of facts. In Europe philosophers reason from principles, and thus account for facts before they arise. Too much attention cannot be paid to facts, yet too many facts crowd the memory without advantage, any further than they lead us to establish principles." Really, I wish modern authorities in medical education would see that as clearly. But more of that presently.

He is no mere matter-of-fact individual on a larger scale than usual—no heaper-up of a bigger dust-heap than other people's. True, no one ever brought together so many facts. Every one should see the Hunterian Collection, and remember Hunter's busy life, that he may think shame of such a little as we allow our own lives to concentrate themselves upon. But if he worked patiently at facts, it was not like us young aspirants of the Pathological Society, who hand up our specimens of happy surprises in a glow of wonder that such a thing should happen,

and of pride that it should happen even unto us. Thus, no doubt, is growing an invaluable store of facts; but surely the glow that warms each face as the molecule of experience descends into the *Transactions* must remind us of the shine of the unintelligent Sun of the Coal Era, as he warmed down the fuel for future use. Not so did Hunter collect facts; he always followed principles in his work. And herein is the peculiarity of that wonderful Hunterian Collection, which fully entitles it to the charge of that separate Commission under the Crown who have care of it; this peculiarity, that the preparations always answer some intelligent question. They do not merely reply to such a query as "Let us see what is inside a whelk?" nor stand to record the fact that something unusual happened to somebody who knew the curator, and gave it him to put it beside the thing that was nearest like it in the Collection, or rather the gathering; that principles might come out of the bottles into the curator's mind if he waits patiently in the presence of the, as yet, unknown—lines of proceeding which form the *raison d'être,* as well as the reason of the neglect, of so many museums.

Hunter's mind was creative in the highest degree, and his energy of inquiry was of life-long endurance. Ah! how the little experimenters miss his genius, who work in a spasm of acute inquiry of two and a half to twenty-four hours' duration to find a secret which

Hunter would have given his lifetime to reach!

Hunter did not sacrifice dogs to foolish inquiries, which with all the pain and trouble could not thereby be answered. And if we ask what gave him that most valuable power of estimating what was worth doing, and what could be done—the power which Bacon calls the "mathematics of the mind"—we find the reply, I believe, in these great facts of his history. Firstly, that he was a man who had a free youth, not over-taught nor overstrained; and, secondly, that in his manhood he worked with an eye to usefulness and duty, and not only to notoriety, nor to the mere cry of "Who will show us something new?" Indeed, the main and distinctive feature of his noble life was his resolute pursuit of the practical aim of his profession, to establish sound laws for scientific surgery and medicine. I have said that the wonderful store of facts he collected constituted answers to questions: Hunter the physiologist answering the questions of Hunter the surgeon. He did not so follow physiology as to turn it away from usefulness. With a mind set on discovering the nature of the heat of inflammation, he studies for years, and would set Jenner studying the temperatures of bats and hedgehogs at times when these creatures are starving and asleep. He watches and dissects hybernating bees with the same purpose, taking note of the amount of fat within the insect's body,

—nothing too minute or too laborious, where his desire is to examine and establish a principle in surgery. To throw light on the redness and active pulse of inflammation, he causes artificial inflammations and injects the widened vessels; and he watches for, and finds, the effects of rigor mortis in the arteries. And the results of his work he puts up in his museum. And he will gladly have anything for his collection. *But always putting things by in their physiological order*, mark! so that in due time they shall answer to his further questions. He will lecture on surgical principles,—true ones they must be, —if he changes them yearly in accordance with his observations. But he will not, he cannot, lecture on comparative anatomy or zoology. Why not? It does not conform enough with his main bent to surgery, to a practical aim, to a duty. He believes in a vital principle. Therefore he must have an aim before him. He succeeds in his aim; and by the masterly introduction of the operation on aneurism which bears his name he saves thousands from a painful death. Led further by the same enthusiasm for the true purpose of his life as a surgeon, he inoculates his own frame with a loathsome disease that he may have it always by him to study it, regardless of danger and of pain.

It is true that in the course of his life of observation and experiment Hunter attained to a large zoological knowledge. He sought that knowledge that he might apply it in

the service of surgery. But I gather from the accounts of Hunter, from his letters, from his museum, that the life's aim and meaning of Hunter was duty, and not mere knowledge. His was the nobly useful and controlled enthusiasm of the knower for duty's sake, not the vague enthusiasm of the knower for knowing's sake, which may end in making a man of large natural intelligence find the extreme of his glory in the completest possible knowledge of the common frog. Such a spirit as this was strange to Hunter. I doubt if he would understand a man whose life was settled on mere zoological biology. The instinct in boys which leads them to collect all possible birds'-eggs and every kind of snail-shell is very praiseworthy, and if it continues on into manhood the pursuit of natural history is most enjoyable and improving when followed as a recreation. White's Selborne, or the story of Tam Edwards in the charming book of Smiles's, creates in you a love for the natural historian as well as for natural history. Such works start in the young the spring of the knowledge of nature. The spring of all knowledge is desire to know.

Even when the knowledge of living nature takes the form of zoological biology, and is made a profession of, I know no reason to think slightingly of it, other than that all professions of mere amusement are more or less one-sided affairs. Hunter's life was so devoted to usefulness that I think the pro-

fessional zoologist would have been a mystery to him. But he was spared the question. The zoological biologist is a new species. In Hunter's days that proudly Darwinian development had not struggled into existence. If you observe the zoological biologist, you see he does not belong to Hunter's species; he is distinguished from it by not possessing the aim to be useful. Neither does he belong to that gentle species—the author of the beloved natural history book of my boyhood; for that gentle author was very humble and reverent towards the mystery of life and its authorship, and he addressed the youthful reader very kindly. But the zoological biologist is not very humble or reverent; in fact, he shows very openly a sad *penchant* for doubtful theology, and he comes down upon the pupil like a pedagogue. Hunter classified the specimens he collected from the structures of living creatures in classes, according to those organs of the human frame which he studied to relieve their disorders. The zoological biologist collects specimens, but he classifies the animals in a chain leading downwards, and he preaches certain conclusions. If Hunter had seen such a collection, I can fancy he would have said to the zoological biologist, "Why have you brought them together in that way, in a chain from man downwards—with the gorilla there, and there the crocodile, and there the amphioxus, and there the salpa, and there protoplasm, and

then the mud at the bottom?" And if the zoological biologist, with cynic smile, began eloquently to discourse upon the divine attributes of protoplasm, and its operations in the superhuman potential-indicative mood, present-future tense, and to eulogise mud as the great parent of things, the source of life and beauty, I believe that Hunter would have turned his back on the zoological biologist, for he was a strenuous believer in, and combatant for, the vital principle, as are all good men and true who have their faces forwards, and who do not fall into the absolutely unproven guess of the correlation and conservation of vital with physical "forces,"—a view which dwindles down the study of life to a correlation and conservation of its physical details in the pickle-bottles and dry bones in museums, to the neglect of its vital principles. And then Hunter would rejoice that his museum is under the care of the Crown, and is not mixed up with the museum of the Royal College, and would be glad that in his truly natural classification of that physiological museum which he made, and which is the true pride of our profession, he gathered his numerous specimens of the wonders of the living world into groups of organs—breathing organs here, organs of sight there, organs of hearing, of smell, of touch, in due order,—thus intelligently studying the several members of a life within the circle of manhood, the completest terrestrial form

of life; working within the outlines of the completest life, rather than comparing life with life, and modestly putting forward his vast study of the living frame in terms of admittedly incomplete knowledge of its parts: instead of taking the whole man, of which we know just a dangerously little knowledge, and comparing him with the whole gorilla, of which we know but a dangerous little, and then with the crocodile and the amphioxus and the salpa, of which we know but dangerous littles, until our once charming natural history becomes a mental way by dangerous littles into the prehistoric mud, there mentally to sit in the damp and look into the dark.

It is very true that to know and to think all you can to widen the knowledge of fact-truth is in its way commendable. My point is clear. I claim for Hunter that, great anatomist as he was, he was saved from mere doctrinaire tendencies by his noble aim to follow and improve the art of surgery. You might have learnt much zoology and comparative anatomy from Hunter, as I did in like manner from Mr. Hilton and Sir William Gull. With it he aided you to learn, and fixed in your memory some important rule of surgical treatment. And you were the better surgeon or physician for your physiology, and perhaps would imbibe an ardour in the same spirit to find matter in nature-knowledge to bring in further aid of practice in the future. But the

successors of that Hunter who thus taught physiology in aid of professional knowledge have handed over physiology to the special biologist, to be taught rather in competition with than in aid of professional knowledge. The rise of the species biologist, who knows nature like the boys know birds'-eggs, for the sake of knowing, and is nobly superior to mere utility, nobly useless,—his rise has brought a problem of increasing importance into the question of education, and chiefly of medical education. The new species influences us in several serious ways. Thus:—1. In that enthusiasm which would find it the highest glory to know perfectly the common frog, he pursues facts without due regard to their utility or principle, and thus the science of physiology is fast becoming very like that Chinese philosophy of facts which Hunter ridiculed. 2. As he knows for knowing's sake, unburdened by duty, he does not estimate the smallness of the time the student for duty has to devote to inapplicable fact-heaps; and presses for more of that student's time, already too small, in which the student has to learn his professional duties. 3. The *aim* of his system of knowledge not being towards utility, there is a neglect in enforcing the useful bearing of that comparatively small part of the fact-heaps which applies to the student's ultimate professional services. Meantime, the trainers of the student for professional duty having given up physiology to the professed

biologist, the bright influence which Hunter brought to bear direct from his physiological knowledge to his surgical enthusiasm is lost to the student. In short, physiology is made too large and too loose for the student's grasp, and has not its chief bearing in the direction of his future service. And if it is true, as I hear, that the zoological biologist is to bring in a law that at the London University no one shall join Hunter's profession unless he previously dissects some frogs and snails, surely this is not only contrary to common sense, but it is contrary to the analogies of the biologist's own proper field of inquiry. For if it be true that nature, in developing the human embyro, raises it through a stage of fish and reptile, just as the medical embryo is raised through a stage of botanist and zoologist, yet in the human embryo the stages of fish and reptile are very fleeting, nay, merely suggested. Nature does not make the little mannikin into any kind of fish or reptile, and certainly does not set him to do the work of a little fish, whatever that is. Why, then, should the zoological biologist, devotee as he is of stages of development, wish that the young medical embryo should work as a larva, and should not only dwell long in the zoological stage, but even do the proper work of a zoologist? If I remember rightly the zoology I was taught, the only sorts of creatures that work in their larval stages are cockroaches and silkworms and sea-urchins,

unless it be professional zoologists. If it be intended to make the student obtain a realising sense of the time and patience which have been actually consumed in the work of the biologist, that is a result desirable in its way nowadays when people carelessly use the fruits of others' labours without ever thinking of the effort those labours involved. I believe it would be well if over the lion's den in the Zoological Gardens it were so inscribed how hard it was to catch him, that the couples who play the higher animal on the safe side of the bars could feel what lion-catching means. And the same principle may apply when the chase is not the chase of the Lion, but the pursuit of the closed end of the bowel of the Cockle. Nay! That the battle may wax warm indeed in the latter pursuit all readers of zoology are compelled to know.* Yet surely it would be a pity if the following up of the celebrated blind end of the intestine of *Terebratula* should make any student blind to

* I refer to the following, in "Elements of Comparative Anatomy," by Professor Huxley (page 27, footnote): —"Professor Owen, in the second edition of his lectures on the 'Comparative Anatomy and Physiology of the Invertebrate Animals,' published in 1855, thought it not unbecoming to sneer at this discovery,—'There may be blindness somewhere, but I think not at the termination of the intestine of *Terebratula*' (*l. c.*, page 403). As my statements have subsequently been fully borne out by Mr. Albany Hancock and by M. Lacaze Duthiers—two of the best minute anatomists of the day—I trust Mr. Owen is now fully satisfied as to where the blindness really was in 1855."

the great ends which Hunter's life was so nobly devoted to achieve.

The main point I want to urge is, that our youth need to be taught more by the professional worker, if less by the professional knower. I believe that if the right kind of nature-knowledge—such as bears on the great questions involved in his life's duty, such as is carried in mind and used by those who themselves discharge the same life's duty—were imparted to the student along with, and in the course of, his practical training, there would be far more of earnest work in fruitful departments of physiological knowledge; clinical chemistry would be advanced. The descriptive characters of disease would grow into a true science. The diseases to be recognised and the art of recognising would be more sure; and the true purpose of the profession would be furthered, even if the more fruitless departments of biological lore might progress less in that futile way which tends to make their chief professor's main apparent aim to become a Doctor of doubtful Theology.

Under Hunter, and after his death, many surgeons set themselves with enthusiasm to found the rules of cure in the laws of nature. Museums were set up, and work was earnest and hopeful. Now what we observe is, that the enthusiastic young minds of the profession are very apt to be drawn aside to professional biology, depriving our ranks of some of the best workers, or causing our best

workers to gather knowledge along lines which have not the practical bearing Hunter maintained; so that those who follow such lines are not thereby led into usefulness. Surely for our hopes of the future we must ask whereto does our proceeding engage the minds of the young? Do our youth now form, or even frequent, museums which embody inquiry? I fear not. They are forced to be too long over their biological fact-heaps. I doubt if the professed biologist's physiology stirs any enthusiasm in medical students; and I do not speak without a certain experience. Nothing in the way of useful physiology can be so attractive as Hunter's preparations in the Hunterian Collection. Does the modern system send young men to this priceless treasury? In answer, I will just mention that I read in the year 1859 every preparation in the large room which contained the Hunterian Museum; and this took me four months, from ten in the morning until four in the afternoon. Well, in all those four months I never saw a single inquirer in the Museum. I was there from ten till four daily, and all that would happen was, that on some days a saunterer would come in (usually with his sweetheart) to look in an agreeable mutual horror at the dreadful things in the bottles! I beg pardon, I did see one inquirer one day, and he deserves mention. There was a hubbub one day, and a distinguished-looking gentleman came to me, led and followed by

several of the minor officials of the Museum; an anxious inquirer was to them an interesting specimen, and they brought him to me because the then curator was out, and as I had seen all the specimens they thought I could answer the gentleman. When he spoke, I found that, the night before, he had made a bet that the woodcock has no bowels, and —honest man as he was—he came to the Museum to settle the matter. He was the only inquirer I ever saw there, and I am sorry to say he went away very dissatisfied. He wouldn't believe me, and did not conceal that he thought nothing of a museum which had not a woodcock so prepared as to answer his question.

What Hunter's life shows is, that the value and power of a man does not consist in what he knows, but in how he knows it, and whether he can use it. Hunter's was a character quite distinct from the professional knower. In studying his life some great fallacies, such as spoil many lives, may happily be exploded. In him you see that it was not his knowledge, vast as that was, which constituted his power. And we of this generation, who seem to commit ourselves deeper and deeper to the fallacy of confusing knowledge with mental power, may well consider the life of Hunter. Knowledge may be a token, or even a proof, as it is an instrument, of power, but it is quite false to regard it as a *cause* of power. The bending of the trees to the west when the east wind blows does

not induce people to think such a bent of the trees to be the cause of the east wind; but similar fallacies of less open instance are often allowed. Thus, to take an example, when a river flows through a fertile valley, the geography books commonly say that valley is watered by the river, as if they looked on the river as the cause of the watering of the valley. But, in truth, what seems to water, only drains; once in the river, the water is away to the ocean, and waters not the thirsty land, but the sea, that is wet enough already. The river is the drainage, not the water-supply—the effect, not the cause. Now, it is just the same with the knowledge of biology in such a mind as Hunter's. There flows the knowledge visible enough in his fertile mind, but whoever is concerned in raising the like fertility in another mind must rightly know the source and spring whence that knowledge came, and not look only to the mere body of learning. He who would make a Hunterian mind by cramming a young man with biology is very like one who, hearing that a river watered a fertile valley, should, to fertilise another valley, dig a long trench, and fill it with water. But, in fact, it was not the possession of the knowledge that made Hunter's mind great and fertile. It was the continual desire and getting of the knowledge for use; so that it was a living stream, and not a stagnant pool. For as the river flows and endures by reason of the water the uplands

have attracted to themselves, so the stream of knowledge in a human mind, to be useful, must come down from activities of thought which demanded and drew down a supply of principles to the dry dust. For instance, to the Chinese dry-dust fact-heap of modern biology.

The great fallacy of the age is the vulgar fallacy that knowledge is power. But not all knowledge is power. Only the knowledge you have faith and aim to use is power; and the instinct of each mind is, I believe, a far better judge of how much knowledge it has faith and aim to use than we commonly suppose. Knowledge is not power. Any fourth year's student knows much that Hunter did not, and could not, know. But where is the power of Hunter? Power arises by *training in the use of knowledge.* Consider the difference between training and teaching. The *teacher* carries over the things he knows, and fixes them in the learner's memory; the *trainer* takes what is in the memory, and converts it into an organ for the pupil's own use. The store of memory of things taught is totally distinct and separate from the trained mechanism for use of knowledge. And these two different things—the store and the mechanism—are in separate places in the brain. It is only of late years we can be sure of this. We have it proved obviously in the case of language in what is called Aphasia. In aphasia, a person paralysed on the right

side of his body has lost the power of using language, and yet understands all you say. Obviously, then, the understanding of speech is in one place, and the power of framing language is in another place, in the brain. The same is true throughout all human acquirements. The power of knowing is the fruit of knowing, and the power of acting is the fruit of acting. There is knowledge stored in one place, and the power of using it stored in another place. *Teaching* is the storing of knowledge: it may be done quickly. *Training* is the creation of an organ for use of knowledge: it needs much time; it is a slow process. The trainer has to convert the pupil's knowledge into motive, his desire into patience, his will into skill. Every good trainer aims to raise up in the pupil's mind a *self-training faculty*, which shall itself continue to train more and more knowledge into motive. By such training knowledge becomes power. But knowledge, as given by the mere *teacher* into the memory, is not power; it is so much weight, which by training may become the instrument of power.

Now, the self-training spirit is natural to some men—to all great men. On the other hand, the self-training spirit is almost absent in some men. These are the fools, and trouble every one as to what is to be done with them. But the vast majority of men have some self-training faculty; and the proper aim of education is to support this,

which I may call the vital spark of character, by help from the training faculties of others.

Every man is born with so much possible desire, and with so much possible power is he born. Desire is even greater than power; it is the possibility of power. A man's power cannot grow beyond the limits of his desire. The great fallacy of the age is in thinking that education is packing a man's knowing faculty with a heap o facts; and this fallacy is founded in the belief expressed in the vulgar and erroneous proverb, Knowledge is power. Large amounts of knowledge which cannot be brought into present motive and use interfere with training. Such knowledge absorbs the pupil's intelligence uselessly. The pupil rests his attention on what he cannot use, instead of fixing it on what he can use. Such knowledge diverts the pupil from the trainer's aim. It raises vain questions to which there is no answer, yet which may be more attractive than the aim the trainer has to create. The pupil thinks himself wiser than the trainer. The trainer's always slow process is rendered more slow and more difficult. Now, bearing in mind this distinction between *teacher* and *trainer*, and remembering that these two act on entirely different parts of a pupil's brain, let us note that in medical education, whilst the average pupil is usually for two years or more in the hands of the teacher of more or less aimless scientific knowledge, the average pupil is

only nine months in the hands of trainers in skill; the trainer in medicine has him three months, and the trainer in surgery has him six months. The medical trainer has in three months to make a pupil experienced and skilful in using the most complicated system of means of recognition and of operation that are to be found in any art under the sun. And the natural consequence is, that he very often does not succeed; that the pupil in a vast number of cases goes away with the dust-heap of biology department wasting into oblivion, and a merely abortive or embryonic organ of skill. And this state of affairs has arisen because the aim of the biologist has separated and diverged from the aim of the physician. The one seeks the largest knowledge of living creatures; the other the recognition of diseases for the purposes of prognosis and management. In Hunter's mind, the aim towards surgery dominated all serious divergence into the professional nature-knower. Now we have the aim after the largest possible knowledge of living creatures in the hands of the professional biologist and physiologist. The physiologist is endeavouring to reach the most minute and thorough knowledge possible of all the textures in the frame. I do not quarrel with this. It is most praiseworthy.

I must ask of your justice to notice that in all this nothing is said against science. I only claim that the right teaching be given

at the right time, so that each student may have a chance of being trained adequately in the practice of recognising the kinds and varieties of diseases and accidents, and learning to use the means of relief. Give him nature-knowledge in such a manner as will serve in establishing principles for his practice, but don't lead him hurriedly all afield into professional biology. If you teach him rightly as much nature-knowledge as he has fairly time to know well, he will not forsake the pursuit of more in the earlier and less occupied years of his practice. He is all the more likely to seek to know more when he has the satisfaction of knowing well and feeling the use of what he knows; whereas a smattering omniscience raises vanity and takes off the freshness from inquiry. But now, by publishing the pass-lists of the schools, a pressure is put upon every school, compelling it to devote itself more and more to the teaching of fact-heaps, because fact-heaps show in examinations, and training cannot obtain credit in examinations. Thus we often see men who are naturally devoted to professional duty, and who have been constant in the wards,—we see such men snubbed or plucked, whilst a quick learner of fact-heaps passes with *éclat*. But I do not speak against Science, rather confiding in her natural attractions, and believing that although by teaching science you do not train, yet by good training in pathology and medicine you raise a desire for more and

more knowledge of the laws of life, as bearing on the human organism, at least in all those who are capable of anything above mere routine, and who could be benefited at all by any science in excess of the least they can get a living with, teach it when and how you will. Far from disregarding the study of life, or being willing to throw a slight upon it, I would declare that my most enjoyable years have been spent in its pursuit, and I would humbly recommend the like pursuit to all who in their earlier years have leisure for it. They were almost my happiest thirteen days which were spent in watching three embryonic cells in the dorsal fin of a living young salmon, and identifying them and sketching daily their changes, whilst two of them extended out to join a bloodvessel, and the third extended out to join the other two, and thus an arched loop formed, into which loop the first rush of blood occurred under my observation, the blood rushing first into the two cells, and at last into and through the third. Or those months spent in searching through very many transparent water-dwelling larvæ of insects to discover the ending of nerve on muscle, until I lit upon an instance where it can always be easily and certainly seen in the living creature; although no one since its publication has repeated this easy observation, which is even at present the only English description of a mode of nerve-termination now universally taught on the

Continent. Or in watching the Rotifera, wherein I first explained the true nature of the cilium-tags, and pointed out the presence of a water-vascular system in *Limnias* and *Floscularia*, the tube-valve of the latter, and the constancy in all these animals of an organ of sense on the back of the neck, and of two symmetrical sense-organs at the sides, &c.,—in the course of which watchings it chanced to me to be very near making a medical invention, only that it was in use already, for I saw most obviously a constipated rotifer of the genus *Euchlanis* give himself quite successfully an enema with a syringe shaped exactly like those green indiarubber bottles in the chemists' shops, only much smaller—all which is duly set forth in the *Transactions of the Linnæan Society*, vol. xxiv., 1864. Or in following the individual Stentor for eight hours at a time, whilst a crest on the side of his trumpet-like body, which crest was described as a generic character of some Stentors,—whilst this crest turned slowly round the creature's body, and proved to be the new head which should carry off the old tail in the self-division of that body. Or, in short, in eight years' continual study of the life of transparent inhabitants of fresh water. But at the end of which eight years there grew in me by experience the conviction that such study carried to excess takes one away from those vast masses of information and experience which constitute pathology and

clinical medicine, and which it is one's duty to know thoroughly if one is to keep at all within the lines of medical or surgical practice, which it is one's duty to know not as things one has heard of, but as far as possible to know as things seen and seen again until they are familiar, and seen in such a way that the mind rises to meet each emergency with a plan of management. To teach every student to recognise rightly every disease, and to have promptly ready a proper management,—such is the proper aim of medical education. And matters of knowledge that do not help men to recognise and to meet disease should have a moderated proportion to the training in use of matters that do help to recognise and meet disease.

I will illustrate my meaning by a case to show how the excess of teaching tends to bewilder and paralyse the pupil against the efforts of the trainer; and, if the trainer fails, tends to carry the pupil from the extreme of science to the borders of quackery, which are less distant than you might at first suppose. Let it be the case of indigestion; and let us compare the mere knowledge that a modern student is taught, with his possibilities of trained skill and power in dealing with the case.

What the learner is *taught* as to digestion is this:—That the process of digestion is the solution of the food in the stomach by the saliva, and by a juice from the stomach itself, which juice acts partly through solu-

tion by three several acids, and partly through the peculiar action of a principle called pepsin, which aids the solution and prevents decomposition; the process requiring also that the food be churned about by the muscular wall of the stomach, and kept at a certain temperature. The juice is drawn by certain glands from the blood, which requires to have certain qualities, and which flows in vessels in the stomach-wall. These vessels are widened and narrowed by the sympathetic nerve; and, finally, the pneumogastric nerve has a certain influence on the work of the whole, keeping all the processes in play. In addition to that knowledge, the learner is taught the microscopic details of these numerous parts, all and several. *There* is plenty of knowledge, if knowledge is power. That is the biologist's view of digestion. Is such knowledge power? Consider your case of indigestion. What is the cause of the indigestion? Is it that the saliva is wrong or deficient? or is it the gastric juice? and if the gastric juice, is it that there is not enough of it, or too much of it, or is it wrong in quality? and if so, is it that the acids are deficient or excessive? and if so, how many, and which? Or is it the pepsin that is not enough, or will not prevent decomposition? Or is it that the stomach-coat does not churn enough, or does it churn out the food too quickly? Or, instead of looking to one or more of these special causes, are we to look to the glands being wasted or obstructed? or is the blood

impure or thin? or are the vessels thick? or does the sympathetic nerve widen or close them too much, or at the wrong time? or is the pneumogastric nerve disturbing instead of combining all these acts? Yes! knowledge is power; it is a great power of asking questions. But when the biologist has set all these questions working in the student's head, how far does that help the training physician to *train* the student in the art of treating indigestion? What, then, does the trainer now do? He considers the forms in which indigestion appears. He does not make much ado about its possible causes, leaving these perhaps in the fact-heap departments of the student's brain, with danger of their serving perchance for mild quackery on occasion. He divides the forms of indigestion into classes, according to his means of relieving them; and he trains the pupil in recognising these, and also trains him in the proceedings for curing them,—which is the only sound, sensible, and proper plan.

And to thus train a pupil through the forms of all diseases requires a very long time, whereas, as I have said, his trainer is allowed a few months. Yet the pupil has been two years or more in the hands of the biologist learning aimlessness. But I find a few months of little use in training a pupil. If you only had to *teach* him it would be little, but in order to train men you have to know something of their nature. For you have, as I said, to convert, and train them

to convert, their knowledge into motive, their desire into patience, and their will into skill; and in a few months you have hardly found out what sort of a man you are dealing with, and much experience hardly enables you quickly to know your man. For not only are all natures not alike for training purposes, so that some need training one way and some another; but you find that equal points of character in different minds are of variable value as leading features. It is just as it is in botany, in which, you know, characters that are fixed throughout one order of plants become very variable in another order. I need not remind you, for instance, that the pore-opening anthers which are constant in the *Ericaceæ* are very variable and inconstant in the *Solanaceæ*. And every one knows that the imperfect condition of the flower which characterises the *Achlamydeæ* is reduced to a mere specific trait in the *Fraxineæ;* so that the ash has no petals, whilst its cousin the lilac is a rich and beautiful flower. It is just so with sorts of pupils. A character or power is constant and trustworthy in one kind of pupil, yet that same character or power becomes inconstant and variable in another kind of pupil. In short, one kind of men are best trained with due regard to their imagination, yet another kind of men require the whole address to be to their reasoning faculty. But meantime no experience will save you from the necessity of knowing each one if you are to

train him well; for unless you know a man you may be hanging the knowledge on a point of his mind whose activity he least enjoys, and naturally least encourages.

Now, besides this truth that the biologist takes up relatively too much time, and leaves not time enough to the practical physician, there is yet another aspect of this important question which must not be overlooked; and that is, that the biologist and the physician work in opposite directions, if upon the same lines. And it is very curious to me that no one notices this leading truth. The biologist, if he shows any aim at all, stretches himself out to learn the first beginnings of life and its smallest minutiæ. Now, the task of the physician is in quite another direction. I will show you what I mean. Life is in nothing more mysterious than in the strange want of relation between its beginning and its end. Life comes as by spermatozoon, and breaks down by mechanics. The biologist's question is always driving at the origin of life, but the physician is concerned with the wear and tear which comes by mechanics. If we follow the biologist through his long story, what does he do towards touching the mystery of genesis, or help us to conceive how a little thing shaped like a frying-pan, and so small you can scarcely see it with the best microscope, shall carry over the shape of the paternal nose, the colour of his whiskers, and even his mode of thinking, for sixty odd years?

Towards that strange truth goes the biologist. He has yet to explain how it correlates with the physical forces. But my point is, that the biologist's question of origin and development is not the same as our question, when we remember that we are concerned in the breakdown of life, and that life, which begins in mystery, breaks down mostly in very traceable wear and tear. Just think of the pretty foot of the maiden, how it grows into the corny, knuckly extremity of later years. So, though lost to sight, every fibre of us wears and tears. The heart's beat strains the vessels, as walking strains the foot. Dust chokes up the lymphatics and glands of the lung, until its texture breaks down. The knee-pan in every man by forty has a bad-looking patch worn on it. And the knowledge of these changes, which is pathology, constitutes a vast field of inquiry. It is a most important field for the practitioner. The physiologist considers the origin of the spirit of life, whilst we have to consider the very different question of how the living thing beats itself to pieces—a question which is so often purely mechanical that I am tempted to say it is nothing like the question how they grow, any more than the wearing out of shoe-leather is like the development of cow-hide. Preventing wear and tear by soothing and supporting is nineteen-twentieths of the function of the physician; and wear and tear has to do with severity of use, and not with history of

development. Supposing that by a chain of argument to which Schleiden, Remak, Virchow, and Darwin each contributes a link, I prove that the tubercle-cell is a direct descendant of the ovule of the original gorilla. In what does that at all tend to help me cure tubercle? It goes the wrong way, if along the right road. To the physician the cause of disease is the preventable cause; but so ignorant are we of the causes of development of tissue that to find that a disease includes development of cells tends to render it mysterious and place it beyond our reach, and to make us so far powerless in prevention. That side belongs to the biologist; the practitioner has to consider the shocks and injuries that are the preventable causes of disease. The point I urge is, that there is a certain neglect of training and of the aim of training in completing the course of medical study. Our modern tendency is to spend the larger part of a man's time in teaching him professional biology; and there is growing up a generation of physicians, through the long prevalence of that system, who are so imbued with the scientific spirit as absolutely to forget in the highest issues that their profession has any practical aim. How else can we explain this fact: that at the highest examination for the degree of M.D. at the University of London, not three years ago, the case set before the candidates for commentary, to test their power of know-

ing disease when they meet it, and of treating disease, was the case of a man who died without the physicians having been able to make out his complaint at all. Now, it is evident that whether the poor man had the symptoms which would have revealed his disease, or whether he had not those symptoms, his case could not be a fit test of skill in recognising disease, let alone treating it. For if the symptoms of the disease were present, they were not noticed, so that the observation failed. But if the symptoms were absent, why choose such a case, and set an impossibility before the candidates? At Cambridge they don't for the wranglership set problems that they cannot answer themselves. And if you reply that the examiners wanted to try how much the candidates could produce of learning, that is just my point. It shows that the examiners called for scientific information towards an end which they could not achieve themselves; as if the learning were everything, and the end nothing. Now, these examiners were such able men that I can see no explanation of the proceeding, except that they were so scientific that they only thought of an intellectual puzzle, and were so afraid of not making that puzzle worthy of their clever candidates, they made it quite insoluble. But that was letting go the practical aim of the profession, and I mention it because it is a *sign of the times.* But there is a greater sign, and that sign is

the Nomenclature of the Royal College of Physicians. That, you may remember—for I have no doubt you have not looked at it lately—is a book to fix names of diseases for the registration of deaths and of sickness. It is in five languages, which may indicate a hope that if it is of no use in this country, it may be found of some service in foreign parts. And one of the languages is a dead language, which suggests that at the worst there is yet another hope—that if it is rejected amongst the living, it may chance fare better amongst the dead. In it there are 1146 names for diseases, and yet there is no attempt to show a desire that the names shall be of practical use. No attempt is made to give names for those groups of symptoms which leave the best physicians in doubt as to the nature of the case,—which even left the London University examiners in doubt about the case I just now mentioned. Am I not justified in speaking thus strongly when, as a typical instance out of a hundred, you observe that the College gives one name for Typhus, and one name for simple Cyst of the kidney, which latter condition no one can know of, and if he could, no one need care about? Whereas it were surely possible, if a practical aim were before the College, and it were surely most valuable, to specify some forms of typhus, if not some of its associated accidents, so that the distribution of one or other of the forms in different epidemics, or in different places in the same epidemic,

could be recognised by registration of such forms. We all know typhus. What we want to know is what governs this form and that form of typhus in its distribution and causation. Yet the College takes no notice even of the existence of kinds and degrees, so that all that can be registered is the relatively bald and useless fact of the occurrence of something thought to be typhus in any district. Why not so divide typhus by its leading characters that we can see whether given districts and circumstances give rather one sort of typhus than another, and so on through a number of other diseases, instead of crowding names of unknowable and practically valueless items of morbid anatomy? To apply this Nomenclature you must have the certainty of a post-mortem; and you know well that not one in 300 of the bodies that die undergoes a post-mortem inspection. If you consider the book you will see that not one in twenty of the names could be used with certainty without an inspection of the case. So it is a book of names that does not name what you might know, and plentifully names what you cannot know. Well may it be in at least one dead language! And the College are going to issue another edition; so there will be plenty of copies. Then a copy may be torn and put into each coffin, as those Indians put a broken bow and arrows with the dead warrior for his journey. It may be that down among the shades in the poplar groves of Persephone

they would amuse themselves settling their exact nomenclature on the College Register.

I mention these *signs of the times* in no spirit of mockery. Very humbly, I feel no desire to look around for your approval. I have an earnest belief that Hunter's profession needs recall Hunter's spirit, and once more, instead of wandering in professional biology, and proceeding as if nature-knowledge were their ultimate aim, pass through and take such a knowledge of nature as is helpful, always in a spirit of self-control, and always keeping their great purpose in view.

We want less of such biology as takes all purpose out of the universe and aims at professing a theology of high apes. We have a right to resist, as physicians, the drag upon our profession of workers in such an aim. But Hunter's back was towards all apes, and his face to the future; because he did not make futile biology, but took pains to bring in the knowledge of nature to the help of man. Infinitely energetic as he was, his energy was towards utility. Modestly he claims your remembrance. A true utilitarian, if any skeleton should be of use to fix the standard of human greatness, he would secure it at all cost in the Irish giant, whom he accordingly followed with triumphant tenacity of purpose. He did not do as the great author of the utilitarian philosophy, whose fleshless bones, clothed in a coat, were, by his will, to sit at the meetings of his followers, to give the greatest pleasure

to the greatest number of Benthamites. Hunter showed no unworthy touch of self, either past self or future self. And what was it that kept him so pure, so that he was not like the speculative leaders in biology, who pursue their subject regardless of the aims which kept him simple, until their subject, however elaborate, becomes as debased in its departure from function as it is florid in profusion of ornamental minutiæ? It was this: the maintenance and steady following of his aim as a surgeon. That kept his mind from wandering into vain-questioning biology, which wandering, I hold, must be judged twice, and not passed offhand into the light of the glory that surrounds Galileo, and Newton, and Dalton, and other great philosophers, who pursued knowledge for the sake of the knowing, or at least with no evident direct aim towards utility. For those philosophers offered truths which enhanced the sense of personal dignity in the learner's mind. Nothing in their discoveries tended to spoil the knowing thing for the sake of the knowledge acquired. You may know the laws of light without disturbing your own light. But in vain do we overlook the truth that a new element is necessarily introduced when the pursuit of the knowledge touches inquiries that are charged with inferences as to individuality and its destination. Such knowledge plays on other parts of the learner's mind besides his knowing faculty. So it is only fair that time and

circumstance be considered in such learning. However unfashionable and unpopular it may sound, and however unworthy of an age which, in the false faith that knowledge is power, will have the tree of knowledge up to examine its roots lest anything should remain unknown, I believe it should be said and held that when any facts are raised into opinions which tend to greatly change the learner's views of his own individuality, the question is not simply one of knowledge and of the glory of discovery; lest theorists should go farther than they have gone, and hasten to raise incomplete fact-truths into unworthy and debasing general belief. For all human history has shown that those who hold general beliefs which animate individuals with a sense of personal worth surely displace in the human struggle for existence those who hold general beliefs which abase and demean their individuality. So that if in his wanderings the biologist touches by necessary inference the value of individuality in his average fellows, the question of the worthiness of such biology is more complicated than any question in regard of mere knowledge, because it affects the knowing faculty. And if experience should show that it harms that faculty, the glory of biological knowledge may come, perhaps, more under the analogies of the laws that make men cover some fact-truths of their frames with due clothing. And should it prove that a training in exalted views of their individuality is

essential in the average members of a strong community, overmuch display of speculative biology may ultimately come to be regarded as an exposure, and not gloried over, lest the young and experienced learn to think meanly of the house into which they were born, and, knowing no better, believe their mean view to be secure in the sacred name of Truth; whereas at best it is but a phase in the speculative struggle over the half-sacred name of General Truth. I say advisedly the half-sacred name of general truth. For no complete answer all these 1877 years has been given to the question, 'What is truth?' and, until we know the answer, how can we tell but that there may be something required to make human views of general truth completely sacred? And thus it may prove that Hunter's dealing with nature-knowledge was right when he instinctively perceived that the true sanction of biology is utility, and its proper method the study of function within the circle of the completest individual life.

ALCOHOL AND INDIVIDUALITY; OR, WHY DID HE BECOME A DRUNKARD?

THERE is one aspect of the alcohol question which, although it is not purely medical, yet is brought strongly before the mind in reflecting upon those mental faults and sufferings for which medical advice is often sought. The aspect I refer to is that which regards the various powers of alcohol over the several faculties or sources of ability which constitute the mind of an individual person, the right balance of which faculties composes such person's mental health. By the power which alcohol exerts over men's enterprise, readiness of resource, and perseverance, what is its influence for or against their working power?

No question requires more circumspect and patient consideration, and yet no question is more nearly hopelessly lost in the conflict of narrow, hasty, violent opinions, because so many have their welfare and happiness blighted by the abuse of alcohol that neither they nor those around them are able to judge impartially as to reasons for its moderate use.

What influence has alcohol on the com-

position or development of mind and texture which shall best enable a man to hold his place in the struggle for existence?—a struggle which in our high civilisation has become removed into artificial conditions, so that a man must somehow find increasing vigour as social life makes greater demands upon him, whilst nature's simple provisions for his self-maintenance are more or less obviously following the example of his teeth, and his teeth are obviously growing few and bad before their time.

Struggle for existence! as perhaps it was in Mr. Darwin's world of advancing beasts and developing vegetables. But now the plan is so turned about by the arrival of man on the scene, and by his civilisation, that you cannot watch even Darwin and Huxley themselves without seeing that the struggle they and other good men wage is no struggle for existence, but a struggle against mere existence. The struggle for existence is brutal life. A struggle to do something more than exist is the sign of human life—the mission of the human soul. What is the use of alcohol in such a struggle? The question is a wide one. It might lead us to inquire what that is which men want to obtain beyond mere existence. Watching some eminent teachers you might suppose it to be a very detailed knowledge of the common frog. But men are human because they look upwards and to the future, not downwards and to the past. And Darwin

and Huxley, and even Haeckel, will in time learn that over-scrutinising insufficient evidence does not make it more complete.

The question what alcohol can do in the human struggle against mere existence cannot be settled by giving alcohol to dogs or rabbits, nor even by observing the effects of alcohol on several soldiers doing so many foot-pounds of work *per diem*. For, although soldiers struggle against existence in more ways than one, yet Dr. Parkes's test of the usefulness of alcohol in them only took into consideration their muscular strength. But alcohol owes not its power over man to its effects on his muscles. It affects the whole man—his whole self—all he can do and say. And not only so, but all that his bodily nature does in secret within him. So that along a continuity of processes, from the beating of a gentleman's heart up to his most perfectly inspired bow, or his most eloquent speech, this agent plays upon his nervous system. Yet many talk as if alcohol was a thing of very simple powers, and its use a mere question whether it feeds people? whether it is burnt in the system or no? what is the nutritious power of a Scotchman's whisky as compared with his porridge?

The people who take this simple view are called Physiologists.

They hold opinions rendered confident by science. Their views, however, ignore such small points as do not come within their science. Just as to botanists it makes no

difference whether a strawberry is a British Queen, or a Doctor Hogg, or a common wild one under a hedge, all are alike *Fragaria vesca*, so the physiologist makes no difference between gentle and simple. To a physiologist a Queen's Counsel and a potman are alike. He will dissect and decompose the one as easily as the other, and into the same fibrin, albumen, neurin, hæmoglobulin, &c., and tell both their oxidations up in foot-pounds. A trenchantly simple levelling view, but with the disadvantage of overlooking differences which, however they evade the scalpel and the retort of physiology, are the very foundation of the order and stability of social life.

The great question of the use of alcohol which I wish to examine is the power it may have over those factors of difference between Queen's Counsel and potman which distinguish men from men, thus going outside the range of physiology to enter the region of truly human interest and import.

Lest I should seem to raise a subtle and unpractical point, let me quote a few lines from clinical medicine, a science which is obliged to extend its range beyond the limits of physiology. Dr. Stokes, one of our best authorities on Fever, says:—

'In private practice, we often find that stimulation cannot be carried on so boldly as in hospital; and this appears to be connected with the previous habits of the patient, not in the way of intemperance in the use of wine, but in that of over-exercise of the brain. Men

engaged in anxious callings, or in intense mental exertion, are bad subjects in fever, and bear the stimulating treatment imperfectly.'

I quote this because experience has led me to the same conclusion—that is, in general, that the effect of alcohol during febrile illness differs much in different classes of people. But whilst we calmly consider such a question, it is to others rendered a theme of insufferable repulsion by the glaring excesses of its more violent and obvious effects in drunkards. And the reaction from the realities of hideous intoxication gives rise in the minds of excellent people to a recoil into a deliberately extreme opposition to an agent capable of such appalling mischief.

Consider for a moment either extreme. Take a case. A gentleman came before me to know what further he might do to have health. His conscience so far was well in his favour. Two years before he had consulted a great authority, and had been told to live on fish and whole-meal bread, and to drink water. He had done so ever since; how observantly, was written in his white face. He looked a compound of whole-meal, fish, and water. What more could he do, now that he was much weaker—scarcely able to do his day's work? He was evading opportunities of usefulness, and living in dread through his sense of prostration—all this in the patient endeavour to feel strong by overmuch self-denial. But the other extreme is better known and justly dreaded.

The man who would feel strong by overmuch self-indulgence, and has become subject to intoxication mania, he is never very far from you. Try arguments on him, if you wish to set up in your mind a refined ideal of tantalising hopelessness. None so reasonable when sober, so explanatory, so promising; such a nice man to talk to. But meet him when on the drink, and then try your influence. The beloved wife may join her hands imploringly; his pallid, starving children may look timidly up in his face: he goes by to ruin himself and all, as you go through cobwebs on a fresh September morning.

Either of these extremes is in its own way baneful, though in different degrees. The drunkard revolts every feeling of humanity in the most positive manner. He who lives under terror of indulgence lives short of full life, and of the good he might be to others. His co-inmates at home could show how his self-involved bearing, if it did himself no harm, yet frets into pettiness half the life of those he lives with.

What would not one do or give to set right these forms of apparently wanton error? —blasting, on the one hand, or stunting or warping, on the other, the manhood of men.

Good people are ready to prove by their deeds how much they will do to remedy the extreme best known to them. They try and save the drunkard by forming Bands of Hope or of Good Templars, vowing sternly to

forego all the pleasures and profit, if any, that are got from alcoholic stimulants, hoping thus to arrest the vice of drunkenness. Such self-denial from such a motive is worthy of all honour. And all men bless them, and wish them the success they fully deserve.

But the truth must be said that their success is deplorably small as estimated by the number of drunkards they reclaim. Experienced men say they have never known a drunkard permanently reclaimed. The teetotal organisations show considerable apparent achievement when they turn to prevent the use of liquor by those who have shown no tendency to abuse it.

But unhappily there is a drawback to this kind of gain, to illustrate which I will give one more case. A poor honest working cooper in the Borough, who had a wife and three children, had injured his ankle with one of his tools. The wound festered, and his constitution became involved in some degree of fever. He was pale, under-nourished, and tremulous, and we judged it absolutely necessary that he should at once have wine or brandy to carry him on through his illness. But he refused to touch anything containing alcohol: he had signed the pledge. Wine was sent disguised as medicine. He found it out, and then would take no medicine. He died in a few days. I am as sure as one can be sure of any such thing that he died because he would not have the help stimulants would have given him. I could

not but respect the poor man, and shall never forget him. He showed character worthy a better end. I think I have never forgiven the teetotallers the loss of that fine fellow. It induced me to invent the term intemperate abstinence. The fact is that we have to recognise in a part of the population a disposition to extremes of which either is intemperate. The common rough rule has been to let these extremes take care of each other. And at first glance it might seem that this is not a bad plan. But it is a little unfair if the kind of people who suffer from teetotal influence are most liable to fall under such influence, whilst they least need the protection it affords.

In short, I believe that to a large extent teetotalism lays firmest hold on those who are least likely ever to become drunkards, and are most likely to want at times the medicinal use of alcohol—sensitive, good-natured people, of weak constitution, to whom the Sacred Ecclesiast directed his strange-sounding but needful advice, 'Be not righteous over much, neither make thyself overwise: why shouldst thou destroy thyself?' He to whom that advice seems necessarily ironical as directed to human beings does not know the nature and weaknesses of many of his fellows. For the place of a good conscience is easily taken by a kind of triple monster, one side of which is always barking, *Thou shalt be clever;* another, *Thou shalt be good-looking;* the third, *Thou shalt be with-*

out fault—perhaps the three beasts which drove Dante back from his way up the hill. And any one entirely under the power of either, and still more of all of them (though as to the first and third one is apt to silence the other), such an one needs help almost as badly as a sot needs help, whilst he is too ready to grasp at any quackery to obtain it.

To meet the evils of intemperance in a few by stern refusal to allow wine to any is like the Stoic plan of striving by repression of every sentiment and feeling of the mind to take away the annoyance of occasional turbulent emotion, or like Mohammed's plan of making his followers honest by disallowing the profits of trade. Some limitation of percentage of dividends might perhaps save Christians from each other. But all extreme rules of repression must fail because people won't endure rules which rob individual character of its elasticity and social life of its charm.

Teetotalising A, the good man, to save B, the sot, is throwing good after bad. The sot is not worth it. He may be deserving of the pity often bestowed on him: all crime has its pitiful side. But as to saving him! Before committing yourself to a lifelong course with such a quest it would be well to ask an oracle. The right oracle would be Morbid Anatomy. That oracular science claims the sot. When the sot has descended through his chosen course of imbecility, or dropsy, to the dead-house, Morbid Anatomy

is ready to receive him—knows him well. At the *post-mortem* she would say, 'Liver hard and nodulated. Brain dense and small; its covering thick.' And if you would listen to her unattractive but interesting tale, she would trace throughout the sot's body a series of changes which leave unaltered no part of him worth speaking of. She would tell you that the once delicate, filmy texture which, when he was young, had surrounded like a pure atmosphere every fibre and tube of his mechanism, making him lithe and supple, has now become rather a dense fog than a pure atmosphere—dense stuff, which, instead of lubricating, has closed in upon and crushed out of existence more and more of the fires and tubes, especially in the brain and liver: whence the imbecility and the dropsy.

And Morbid Anatomy would give evidence that such was the state of the drunkard long before he died. So that in vain you get him to sign the pledge. He signs too easily, because his brain is shrunken, and therefore he cannot reflect. And he breaks his pledge immediately, because his brain is shrunken and his membranes thick, and therefore he has no continuity of purpose and will. The lunatic asylum is truly the only proper place for him. But, unhappily for his friends, he has partial intervals of sottish repentance; and the law chooses to do nothing to protect them from the curse and ruin of his presence.

Now, seeing how hopeless is this sot, if you ask the next natural question, Why did he become a sot? you must direct your inquiry to some other oracle. If you ask Morbid Anatomy why the deceased under inspection had become a drunkard, what does that science say? The reply will be that, after using the scalpel and the forceps, and staining very thin slices of the brain many fine colours, and then spying down microscopes of wonderful power at the slices, and taking the specific gravity of the brain, she cannot tell you why the poor man became a drunkard—you must ask elsewhere. Indeed, it is wonderful the things that Morbid Anatomy cannot find any signs of at the *post-mortem*. She does not distinguish between Queen's Counsel and potman. She inspected the body of Napoleon III., and recorded thus—'The brain and its membranes were perfectly natural.' No fragments or traces of broken empire visible to the highest microscopic abilities. So what chance that such abilities would be able to answer you when you asked Morbid Anatomy whether that sot had ever signed the pledge, and, if so, how many times? If you ask his friends, you will probably learn that he had signed half-a-dozen or a dozen times. They hardly noticed the last few times; he had often signed of late, being as ready for intemperate abstinence as for the opposite form of intemperance.

Yet we want to know why the sot became

a drunkard. If Morbid Anatomy knows nothing about it, whom shall we ask? Our friends the teetotallers press their answer: It was because of the liquor. Well, of course, if there were no liquor, or if he could have been excluded from it, he could not have drunk himself into a sot. That is clear. But it is nothing new of powerful arguments to find that they do not apply to the case in point. Who was he before he became a sot? One of the people—an equal amongst equals. And to exclude him from liquor, you must exclude his equals the people. But his equals the people will not be excluded. Persons of ordinary self-respect and self-reliance will not undertake a pledge of intemperate abstinence—much more will not be forced into it. In fact, teetotal comprises but a small portion of the community—divided into three sections of character: firstly, those strong, good-natured men who sign on philanthropic grounds; secondly, weaker, sensitive-minded persons, who are influenced to sign, but who generally require a little stimulant when out of health; and thirdly, sots in their phases of repentance. And we need go beyond the *naïve* view of these good people, who only think of the liquor and the thirst, if we are to reach any more searching and thorough solution of our grave question, Why did the sot on the *post-mortem* table drink himself to death?

You might try the question on some sot not yet dead, and ask him why he drank thus

criminally. But you would find him an irreclaimable liar. He would say he drank only very little indeed; had had none the last few days. Why did he take it? Oh, he felt so low, he could not do without it. You may leave off questioning him. His brain is shrunken, and his membranes thick.

To learn why the sot drank we must turn to some science which, whilst it treats of man, does not ignore the differences between man and man. Is there no science which touches the difference between a Queen's Counsel and a potman? Do all sciences agree in saying that as far as they are concerned there is no difference? We know science has a levelling tendency.

We are not without a considerable number of sciences nowadays which consider man in various aspects. There is anthropology, the science of the varieties of man as a species, and of his place amongst the apes. This will not do for us—Queen's Counsel and potman are all one among the apes of anthropology. Then there is ethnology, a respectable old science, which studies races of men with more regard to their human side. But it ignores the individuals, and will not help us. Then there is something *soi-disant* 'social science,' which is an attempt of people to deal scientifically with things before they know them; and Science is not in her element when dealing with the unknown. It is a science of things-in-general, without much regard to parti-

culars, and will not help us. But there are also sciences bearing on individual man. There are the old mental and moral philosophies, as well as the new material philosophy, not necessarily moral, which latter will explain the human mind by a series of considerations founded on the responsive jerks obtained by tickling a decapitated frog. These philosophies have to oppose each other. The cut-and-dry discussions of mental philosophy will not avail us. It is a science in which the things are subordinate to the names, and it would be just as well if it resolved itself into a dictionary of moderate size.

What we want is some science that will place before us, in a methodical way, the grounds of human motive, so as to enable us to estimate the forces for and against indulgence in the lives of men.

There is one science I have not named. Its title is promising, and it might prove the proper oracle for us to consult. That science is psychology. But I do not quite know where its oracle is situated. It has a journal, like most sciences nowadays, but in its journal, although there is much writing about the subject, one finds but little upon it.

There are psychologists I suppose, for I remember once taking up from the drawing-room table of a young ladies' school a book, on the back of which was printed, 'The Subjection of Women;' and I was about to look into it, hoping to find some better way

of subjecting them, when, in the page I chanced upon, the first thing that caught my eye was, '*and doctors are not psychologists.*' This set me musing, until I closed the book, and I do not know to this day what means of better keeping women in their places the author—Mr. Mill, I think—had to propose. Evidently Mr. Mill thought some people are 'psychologists,' if doctors are not.

For the subjection of women, I doubt but their old friend Cupid is the best psychologist; and a far kinder friend than those twaddling polygynækophiles of the London University Senate, who tempt poor Psyche into the hard struggle for their degrees. And then, if she succeeds, call her a Bachelor and a Master, as if she were a man. And then shut the door of their lower house in her face, when, all the while, the only right of male masters to enter that door is the degree, of which Psyche may have the pains, but not the profit. Cupid never served poor Psyche so. Only senescent pedants of a wrinkly age outliving young Cupid, an age when women soften the head even more than the heart—only such doting gynækophiles would think this a cure for the 'subjection of women.'

But I digress; and, in short, it appears that we cannot discover a science that will help us; and in the meantime it may be well to do the best one can to settle for oneself the question why the unfortunate deceased took to drinking?

In considering the mind of man, so as to study the causes of drunkenness, we must start from this principle, without a just appreciation of which we cannot understand the formation of human character,—the principle that every individual exists in two distinct phases: phases which are distinct to whatever depth you analyse the character of man, and which remain distinct throughout every development and extension of him, however manifold his powers become. These phases may be difficult to name, but they are not difficult to identify and recognise, and I care more for things than for words. One of these phases is the man as the subject or seat of his own natural emotions, and the other is the man as the seat or subject, or object, or what you will, of what other people make him know and feel. I mean the man as a seat of the set of feelings that make up conscious life; and the man as a unit, under influences dominating his spontaneous powers. The man feeling, seeing, enjoying, suffering; and the man held by the influence of other minds, and compelled by them to reflect their feelings and sights and enjoyments and sufferings, not as he chooses, but as they choose; so setting up within him reflections of their feelings and views and enjoyments, which compete with his own natural feelings and views and enjoyments, and are often antagonistic to these darlings of his nature.

How shall I best express this antithesis?

Perhaps if I call the feelings, views, &c., imposed on the individual by society "common sense," it will be best. Many people use this term vaguely, and half fancy it means vulgar or ordinary sense. But common sense means the sense capable of being common to two or more individuals; in short, the sense we seek to impose on each other, and are impatient if we do not succeed. Let us, then, call the sense imposed on the individual by his fellows *common sense*, and the sense which the individual has naturally within him as his own native bent to this or that feeling *individual sense*.

If you want to thoroughly realise this division of the feelings within, you may look to the lowest or the highest of your mental life. At its lowest, individual sense is that sense which makes you think it is worth while for Nature to keep you alive, and that there is a great deal in your particular self which makes it worth more consideration than the selves of other people. On the other hand, common sense is that sense which will very readily do without you shortly after you are gone. This is their meanest and least worthy field of opposition. Look now at their opposition when in their highest refinement. In its highest refinement the individual sense asserts its claim to govern philosophy: much to the disgust of common sense. The philosophy of individual sense is the intuitive philosophy: the philosophy of the man feeling that good and

right are truths of nature within him. The philosophy of common sense is the utilitarian philosophy. In the common-sense mouth of Hobbes it says, "Good and evil are names that signify our appetites and aversions." In that of Locke it says, "Good and evil are nothing but pleasure and pain." In Bentham, "Take away pleasure and pain, . . . and . . . justice, duty, and virtue are empty sounds." In Helvetius, "Il lui est aussi impossible d'aimer le bien pour le bien que d'aimer le mal pour le mal." This philosophy is the philosophy of men looking at their neighbours with the common sense which their fellows have implanted in them. They see their neighbour, or by reflection see themselves, and their attention is upon the individual, regarding him as he goes to what he thinks good or pleasant and recedes from what he thinks bad or painful. And they see that it is surely a matter of going or coming, attraction or repulsion, whether you call it good or pleasure, bad or pain. And so it clearly is from that point of view. But it equally surely is not so if, instead of the notion of an outsider attracted or repelled, you contemplate within, and in your individual sense feel that the feeling of goodness in your act is not the same as the feeling of pleasantness.

So neither of these "philosophies" convinces the other, nor ever will until the millennium. Next note this important truth, that individual sense and common sense

compete with and oppose each other for power over the stores of memory; so that, according to their respective hold upon those stores, the man's readiness for use by himself and others is different in different people. A person who has strong individual sense—which is much, but not quite, the same as saying an emotional, vivid person—reaches best the stores he has in his memory when his emotional nature is aroused and lively. Otherwise there is darkness in his chambers of imagery. If an actor or speaker, he acts or speaks best when not dyspeptic and dull. On the other hand, a man whose sense is chiefly that common to himself and others, a kind of man who never means more than other people say—which is much the same, but not quite the same, as saying a dull common-sense kind of man—has the advantage of possessing what he has in a way independent of his feelings at the time. He does not want a spirit-lamp to light the chambers of his imagery. Despises it. It is diffuse daylight in such a mind. There is no unfairly kind illumination of one side of things, as there is when the light radiates from a glowing centre.

Now, memory needs to be understood. Many suppose that when they, after a long interval of time, remember anything they remember the thing itself; they think they go right back and touch the thing with their memory. But see if this be so. Rather when a thing occurs which is to be one of

the few things long remembered,—such as your first meeting those lovely eyes, &c.,—the thing comes again in the mind because it made so much impression; and then it comes again—no, not it, but the former recollection of it: partial, and tinted, and spotted, as if seen through a bad glass, so that you want to see those lovely eyes again.

And if this poor memory of the thing does not come a second time into the mind it cannot a third. Of course! you say. Very well; but your "of course" ought not to be so easy as not to perceive that this explains the fewness of the memories that remain from remote life, and the distinctness (apparent) of the few that persist. For if memory went back and touched the bygone things, why should it not equally touch all the things you once dwelt upon? Yet how limited is the range of memory into the distant past! And why? Because it reaches not the things of the distant past directly, but only by the steps which its former acts planted in the interval. So that it steps by its last step to its last but one, and so on and on. And where it has stepped often enough it can step again towards a long bygone incident. But where it has never stepped it cannot after a certain lapse of time step at all, but so much of the past is in oblivion. Hence you must ponder upon what you want to remember.

Now, as to these steps of memory. When that which recalls the bygone incident is the

individual sense—that is, the spontaneous life of the mind—then this step of memory is only available for future use of the individual sense or spontaneous life. When common sense—that is, the external influence of others—raises reflective knowledge of a thing in the mind, and this knowledge is remembered, the step of memory is under the power of common sense.

And in different minds individual sense, or common sense, may so preponderate that in one man the ways of memory are chiefly under individual sense, or the spontaneous life of the mind. Such are, amongst actors, those the late Mr. Phelps called "stomach actors," who act well when not low and dyspeptic. On the other hand, in some people the memory is nearly all under common sense, and has to be questioned out by external influence or requirements.

Now every act of memory under individual sense makes a stepping-stone whereon the spontaneous life of the mind may travel in the future. Likewise as to common sense. Thus is the plan of the mind enriched in either case, and common sense has its ways, and individual sense its ways; but individual sense is the spontaneous life of the mind, and what it lays hold upon constitutes the lustre of the individuality, if any. The labyrinth of its memories is yourself,—your identity in the lapse of years. By the repetition of its acts of recall one year certifies another, reaching and continuing the memories trans-

mitted through from before. On its longest-worn tracks you travel easiest; hence old age remembers the long-remembered things.

On the other hand, the things taught you by the sense imposed on you by others are put together, at school and otherwise, like the parts of a building, so that you are thus so far edified or built up, put together under the effort of your will; effort which is often painful. Look at the face of a school-boy at sums, if you don't remember the pains you took. What is thus put together by the will is reached by effort of the will. These are the things others can demand of you and expect you to know.

But the individual sense is a different kind of thing, and goes to work a very different kind of way—a way of its own. Its duty in the mind is of an importance that is overlooked by common sense. Common sense never understands the individual. No individual ever thinks himself quite properly understood; that is why he goes on making a fuss, political or otherwise. If an eloquent man, in vain he promises silence. The long-practised phrases must flow. They must take some form or another. Just—if I may compare humble things with exalted—as in the case of your cook with his well-seasoned "stock." Anything may be had on short notice; so that if you want ox-tail, the tail can be put in, and you have ox-tail. But pray take something.

The individual sense has to make what is

called a *self*, or *ego*, or *ich*, or *moi-meme* out of scraps and fragments, which are the experience of "one's" life. Think how you believe your mind to be one continuous thing. Yet how, pray, did it become so? Was it continuous in the origin and course of its activity? The life of one's mind is a most broken thing. First, it is banded by sleep with darkness across its light, as a tiger is striped. And as to its waking times, the individual sense flits from object to object, catching this into consciousness, then that, with intervals between the glimpses—glimpses now of what the eye sees, now of what the ear hears, now of what is bygone, as you "think" of one thing after another: the memory serving you with views tinted or spotted by your relation with the thing remembered, so that you see imperfectly *instar speculi inequalis*. Thus, as you ponder, attention fastens upon this or that revolving in your mind, and if there is "much in you," the revolving is large and active, and if you are "sound" it is fixed on true things, things capable of certainty. But some things not capable of certainty must have a share of attention, or you lose the element of good luck. Luck requires a power of attention to things not capable of certainty. That is the reason why those who put all their attention into things capable of certainty, over-scientific students, turn out so very unlucky in after-life.

But how do you suppose these scraps in your consciousness join themselves into an *ego* or self, a "mind" which seems to every one to be one continuous thing? You cannot find an analogy for it, unless you remember how the glowing end of a burning stick when whirled round quickly looks like a bright ring; or how as you go quickly by a park-paling the chinks in it show you a continuous view of the park on the other side. Each chink gives you a small part, but the eye has a power of gathering these parts together, and making the park on the other side of the paling appear, as it is, continuous. It is the same power of the eye (really weakness of it) which you remember in the thaumatrope; that spinning toy with a jockey on one side of the card and a horse on the other, which, when you spun it, put the jockey on the horse; or that more wonderful elaboration of the same thing in the wheel, that, whilst you looked through chinks in it at the pictures inside, and the wheel was going round and round carrying the chinks before your eye, made the people in the pictures hand their heads to each other, or give away each other's legs all round.

There is in your mind a power that does the same by the scraps which come into it daily. And this power is the individual sense. It creates the circle of oneness in you. Your mind acts the thaumatrope. In some the spin is fast, in others slow. As the circle

made by the revolving spark arises in the imperfection of vision, so the circle of oneness of the mind arises in imperfection, which cannot follow the causing movement, and hence asserts a settled unity—the individual sense. Now, be sure that the common sense imposed by others would never create an individuality in the mind. It does not spin, and is not deceived by individuality; the individuality is made by the thaumatropic spin of the things that have pleased you in bygone time. They spin into oneness because the quickness of that which causes your mind is too quick for your mental eye, and the dance of them is the pleasure of your life as a man, as distinguished from the molluscan pleasures of the self-supporting appetites.

We are getting near the Queen's Counsel and the potman. The potman is chiefly molluscan, with a thaumatrope scarcely worth speaking off. The Queen's Counsel must have a brilliant thaumatrope, whirling one client in after another, and making them hand over almost anything except their heads and legs upon occasion. And this thaumatropic spin is the joy of life, and he who has tasted that joy will not be easily contented short of its realising illusion. How does this thaumatrope begin spinning? and what keeps it going? What is the effect of quickness of it? and what of slowness of it? In the one case life is vivid and bright, but in the other you seem to see between the scraps of which the show is made up, and it might be the 9th

of November. For the chief place in such a tawdry set-out appears plainly not worth the having. Nay! you would not be a Bishop or even a Judge; and as to what you are, there is no saying how tiresome it is. When this kind of weakening and spoiling of individual sense has taken place to a serious extent, the person is what is called "morbid." His estimate may be correct, but it is reached by weakness of the spin of his vital power, and hence is not a thing to give pride or pleasure. Who, then, can help him? He may go to a friend, and try to get his thaumatrope a twirl from outside, and if the friend can make a joke or two, or arouse feeling in any way, there may be slight temporary revival; but if the friend has only common sense to offer, that won't spin the thaumatrope. All the influence that the common stock of sense can have won't raise the strength of the drooping individuality. The common-sense man may tell you what he knows; but perchance you know more than he. Perchance you know too much. And knowledge is not power unless there is individual sense to use it.

Such experience does its sufferer at least this good, that he, for the time at least, knows that the vigour of his individuality belongs to nature, and is a thing he can no more call up by his will than he can create oxygen or gold. Like its Maker it is, and it is what it is. This reality is the best and the worst of individual sense.

This absolute nature of the individual sense

when at its best exalts the mind of a man so that he becomes a seer in the highest meaning of the term. Common sense levels all to one common view. Throughout history they have contended, and throughout social life they contend now. Among the lowly and numerous it is preposterous not to be subject to their common sense. In exalted life too much common sense leaves unexplained the exaltation. Common sense in a Cabinet of Ministers of a great nation unites them with the many. But if the nation has to gather up its energies to a supreme act, as of one individual will, too much common sense may make the ships go half-way up the Straits and then come back. True, Cæsar said, "Maxima fortuna minima licentia est." But none knew better than he how such licence is least for tergiversatile common sense.

Doubtless, if you will, individual sense in ordinary minds is more likely to be nonsense, and common sense good sense. But their opposition should lead us to study the very different bases of power or influence which they respectively work from. Common sense can take good care of itself because of its hold on the language understood by the numerous and lowly, our masters. So that common sense prevails in common interests: it is *interrealised*, if I may coin the word, between people. But individual sense, being the life of the mind, has its strength in the man's self independently. And this is most unfortunate when individual sense is morbid, because as

an actual sensation it overpowers common sense within that particular man. For common sense is as to each man an abstraction, not real in any one, but interrealised by common consent of two or more.

Thus an individual came to me and wanted to know what could be the matter with him, that when he entered a room or a church some one was sure to cough or sneeze. I tried common sense on him, showed that when a good many people are under the influence of each other's presence the chances are that one or another has a cough or a sneeze which he is keeping in for the general good, but which a trifle would let off, especially if the door were opened. I might have talked to the wind. His sensitive emotional nature made him feel the cough or sneeze in his very heart; but what I said only went into his ears, and became, at best, a second-hand reflective affair, remote from the heart. Common sense was not a matter of feeling.

Although it sounds like a paradox, yet it is true that common sense does not keep you sane. *Sanity* depends on correctness of that individual life of the mind which I have called *individual sense*. Many people suppose they are most sane when they think hardest. But sanity is an affair of the unreasoning faculties. And you think your way out of it easier than back again.

We get but slowly towards the question why the sot drank. As yet we have seen that—

(1.) Individual sense and common sense are distinct in the mind from its lowest to its highest.

(2.) Individual sense and common sense compete for powers over the memory, and acts of memory arising from either throw the mind under the one or the other, so that some minds are very much subject to the one or the other.

(3.) Individual sense composes the unity of the mind, as a thaumatrope composes a unity for the eye, and it is subject to slow times, but prefers quick times.

(4.) Individual sense is a reality within the man. Common sense is an interreality realised between men, not in any man.

You would not understand all this from the cut-and-dry analysis of mind they give you in a philosophy class, where they suppose all people to be alike. True, all people are alike in a way, very much as spider-webs are alike;—great spider-webs and little spider-webs, with the threads pretty similar, and always with Mr. Spider ready to take advantage of any one caught. But there is a difference in people's *inclination*, as it were, which word itself infers that if you did not prop them up they would fall in different directions, like similar figures with their centres of gravity in different parts of them. If you make due allowance for natural inclination, you will know how common sense has less power over individuals than it is customary to suppose. Life is one long

contest of the individuality against the teachings of common sense. The schoolmaster tries to teach the boy the things known amongst men: rational truth; interreality which founds the social world. The boy's individual sense seeks constantly to escape; struggles so that youngsters with strong individuality fairly groan over their lessons.

As the youth comes through his training, all that is fresh and young and individual still struggles against the common and accepted, otherwise his consciousness tells him machinery will master motive-power. Here comes the difference between Queen's Counsel and potman; for if the tutor has well and continuously done his work, and if the lad has proved capable of yielding the individual sense before the common sense in due degree, then true adultness is at length reached, and slowly comes that great change of personal life when the history of boyhood, which was a story of its own little recollections of itself, becomes, you know not how, converted, so that the past is no longer *his* past, but the past of his race and nation, and he looks back to the dawn of human history and does not even mark the time when his personal life struck in, and he is strengthened by the highest and best that is common amongst men. But perhaps to the potman this change never comes. Doubtless many never become adult in this noble sense, and for our question of the influence of alcohol

we must recognise this difference of capacity and of history.

To make a Queen's Counsel you need both strong individual sense and much capacity for common sense. A just combination of these constitutes what is called *intelligence*. This intelligence is supreme over both individual and common sense, above their highest, above their contending philosophies, intuitive and utilitarian. Intelligence has no philosophy. For purposes of expression it leans to the utilitarian philosophy, as being most expressible. Different degrees of common and individual sense, justly proportioned, constitute different degrees of intelligence. Amongst Englishmen this state of balance is fortunately the rule, so that Englishmen are usually intelligent, if not all very much so. In Ireland the individual sense prevails. They wage war as individuals; a little spirit excites them much. In Scotland common sense preponderates. They are Liberals and fond of education. They take a deal of whisky without much harm. Moderate degrees of excess of individual or common sense, such as those to be met in average Irishmen and Scotchmen, are not serious. But you get more marked disproportion in some minds. Thus, some persons have very little indeed of individual sense, but they have large capacity for common sense. These are what, when young, are called good dull boys, and, as they grow up, make up into good mathematicians, as to

whom Goldsmith's and De Quincey's opinion may be noted. Other persons have neither individual sense nor fair average capacity for common sense. These are and remain dolts, and, with all the amount of other people's money that School Boards may spend in keeping debased Queen Anne buildings over their heads when young, they will make very good potmen. Alcohol does not do them much harm, nor teaching do them much good. In their fevers, as Dr. Stokes says, they bear alcohol well—they need it. Their failing is a want of external support to their pluck when under protracted trial.

Unhappily, also, you may get strong individual sense with little capacity for common sense. Here, as a rule, you may look out for trouble of some kind. These are the born intemperate. Their intemperance may take a good direction, for which all men bless them and call them good geniuses; but their intemperance may take a turn in the direction of self-indulgence, and if you are to save them you must recognise their danger early, and begin early with your means. Keep them from alcohol. Make them sign the pledge. They readily do so, being naturally intemperate. Watch intemperance in childhood, and attend to children who show much individual sense. Their blood is too stimulating, or goes too freely to the brain. That set of nerves which narrows or widens the bloodvessels, control-

ling the supply of their stimulating contents as the magistracy controls very properly the licensed victuallers, allows too much licence to the brain. Such children get almost tipsy on their own spirits. Not that individuality in a child is bad. It is a good thing if balanced by sufficient common sense. See that it is so by imparting common sense quickly and in large proportions. Perchance you may thus enlarge their capacity for common sense. I hope so, but am not sure; for common sense is an abstraction and individual sense a real thing in the mind. But we need not fear a sound individuality. It is wanted as much as melody is wanted in music (*pace* Wagner), or as the proper nature is wanted in the growth of a tree. For a tree rises into its form partly to meet the force of the wind and partly to seek the light of the sky; yet there is needed within it its own nature, keeping it in due shape according to its kind. So each man must, besides all that outer influence brings to bear upon him, carry his own sense. It is as useful to him as an auxiliary screw to an ocean-going ship.

And now for the power of alcohol. *Alcohol weakens common sense in its opposition to individuality.* That is its blessing and its curse; its blessing to the many it blesses, and its curse to the many it curses. It may act on the liver; it may feed. But many things act on the liver, and good food is not scarce. If, recognising the hopelessness of the sot when

once he is a sot, you inquire why he drank, it was not for his liver, nor for food, but because, in some form or other, without reasoning it out as I have reasoned it out, he has found the power of alcohol. The power of alcohol in the world is due to the fact that it keeps down the oppressive influence of others, and of their common sense, over the individual sense, and so makes a man better company to himself and others. It places a man's individually stored memory more within his own power, raising his individuality temporarily, but with danger; makes the coward sham brave; makes the dull a little lively. You will observe the effect easily after dinner, when the wine has gone freely round. Individuality is up; common sense down. It is to the waiters a jackdaws' parliament—all talk, none care to hear. Before dinner he was a welcome scapegoat who would open his mouth to speak. See how aptly the peculiar power of alcohol is recognised in drinking "toasts." No prince even would drink his friend's health in water. He takes that which will spin his own and his friends' thaumatrope a little swifter, and keep down the common-sense influence of business relations. This is all very well at dinner, over toasts, but is very much the opposite of well when men in business take the now too frequent mutual glass of sherry. It reduces the perception of their common-sense relations, and puts the man whose mental balance is inferior into

the power of the man whose balance of individual and common sense is more stable.

You observe the effect in sickness. In a fever the sense of individual strength is failing and pluck gives way. Muttering fear becomes horror and violence; then alcohol will bring back the man to his own help. You make him again come to himself and believe in himself by its aid. The delirium so violent was as that of a shying, timid horse. Alcohol gives the patient courage, and he is fearless and quiet again. In short, it is a medicine of the mind, with some power over the body. And those whose human life, like that of my fish and wholemeal and water man, is stunted and overpowered by observances imposed from without,—a too great influence of the imported sense of others upon them,—a little alcohol will pick up their spirits, and make them act a little more of their own sense in confidence in their own nature. Giving even temporarily a stronger and more pleasant thaumatropic play, it sets up in the memory steps more numerous and agreeable; so that the man's mental stores are more within his own reach, and he passes the inevitable twenty-four hours more to his own just satisfaction.

But as to those whose common sense is small and their individual sense great, alcohol acts upon them as a poison of the soul. Naturally unchecked by common sense, the poor creature enjoys the spin of

his own mind until it is a passion so to do. And alcohol reduces the naturally deficient power of common sense upon him; and thus as he takes it he becomes more and more wrapt up in the pleasures of his individual sense, until he is known to be a sot; and when the horrible discovery is made to him he has not even common sense enough to see that this result has put him down as an individual for ever. So he fears common sense; fears his own conscience and the opinions of others, until he regards his conscience, not as a guide, but as a foe from whom to run, just as rogues see the policeman, not as a protector, but as a sign to decamp.

And Morbid Anatomy has him. His membranes are thick, and he has a lie at the bottom of his soul; and the lunatic asylum and the coffin are ready to receive him.

Unfortunately as to these two classes, those that may and those that may not drink alcohol, the indications are usually reversed in these people from their own point of view. For inevitably the man who is overpowered by his fellow's common sense will not have pluck to think so; and the chances are that under pressure he will readily sign the pledge; whilst the fellow whose individuality has overpowered his little common sense will not be able to perceive this fact, and he will hold the pledge in scorn until he is a sot. Hence it is better for any one to take advice in time on the subject of alcoholic stimulants. Let

him ask the family doctor, who has access to his friends and knows his constitution, and can learn whether there are signs of inherent weakness, and if so, whether it is weakness of individual sense or of common sense, or of both. The balance is so arranged that a little alcohol, as Sir James Paget very ably showed, does most people no harm. Yet the question is peculiarly a question for each person himself, seeing that there is undoubtedly danger to many, and equally undoubted advantage to many others, in its use. And my object in this paper is to show that it is a question not to be left to rudeness and fanaticism, but one requiring the largest consideration of those highly artificial relations under which civilisation now places variously-natured individuals.

Rudeness and fanaticism have failed. Drunkenness prevails in spite of tee-totalism, whilst the pledge inflicts useless self-torture. Let the Legislature be urged to carry out its plain duty,—in giving powers to put the sot under control, and so do the most beneficial act to vast numbers of suffering families that ever was done by any Legislature. For the family-destroying sot is the most pernicious criminal in the land.

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